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TEACHING ECONOMIC THEORY IN MILITARY SCHOOLS DISCUSSED

Moscow KOMMUNIST VOORUZHENNYKH SIL in Russian No 19, Oct 77 signed to press
20 Sep 77 pp 53-58

[Article by Col A. Gurov, doctor of economic sciences and professor: "Prompted by Life, Checked by Practice: Concerning the Problem Solving Teaching of Economic Theory"]

[Text] Some time ago in the Military Academy imeni F. E. Dzerzhinskij the teaching of a new academic discipline-- a course on pressing problems in political economics and military economics-- began for certain contingents of students. The students were given an opportunity to raise their military economic knowledge to a higher level.

The shift in the academy to problem-solving teaching of Marxist-Leninist economic theory, just as the teaching of other social sciences, was dictated by life itself and corresponds to the party's requirements which have been imposed today on a Soviet university, including a military one. That is why I would like to share some thoughts on this score and in like manner some of our modest experiences.

* * *

As is known, the strength of Marxism-Leninism is in its continual creative development. During recent years, quite a bit has been done by our party to profoundly work out pressing problems of revolutionary theory. The enormous experience from building a new society has been summarized and a scientific analysis of the processes in world development has been given in party documents. The 25th CPSU Congress pointed out that we have made serious achievements in the philosophical, economic and historical sciences and in the study of social and political problems. The new Constitution of the USSR is a very great contribution to the theoretical depository of Marxism-Leninism.

Military academies, like every Soviet higher school, try to keep step with scientific progress. Today, the complexity of theoretical knowledge, the widening volume of educational material, and the necessity for closer ties

between theory and practice require a further improvement in training methods. At the same time, the task has arisen to accommodate educational material effectively within the existing limits of the training courses. Experience has shown that this can only be solved by intensifying the training process and thoughtfully selecting the questions to be studied. These are the general prerequisites for the problem-solving teaching of political economics and other social sciences.

Without a doubt, an historical and theoretical examination of the laws, controlling society's development, remains the basic instructional methods principle for constructing the training course. However, stress is placed not on a successive statement of all questions in the over-all VUZ program but on the "selective" and close-up illumination of the more important economic, political and social problems and the conformity to law of the present era.

Relying on what the students have earlier studied, problem-solving teaching allows their attention to be concentrated on new phenomena in the economics and politics of both developed socialism and modern capitalism. In the instructional methods plan this means that during a lecture, for example, the main questions which are more difficult to study, including those which have a spectacular and debatable nature, are submitted. Problem-solving teaching also assumes thorough independent work by students.

If one wishes to speak specifically about the problem-solving study of economic theory, it is very important to avoid duplicating those questions which are in the courses of other disciplines. The compilation in an academy of a logic and block diagram, on which are reflected the sequence for studying the social sciences and their "joining" with military and special disciplines, contributes to the solution of this task.

The exclusion of problems, examined in the over-all VUZ program on political economy, from the course permits putting in first place topics which are connected with contemporary achievements in economic theory. It is possible to relate the following to these: "Development of State Monopoly Capitalism," "The Basic Features of the Economy Under Developed Socialism," "Pressing Questions on the CPSU's Economic Policy," "The System of Cost Accounting Relationships and the Bases for Pricing Under Modern Conditions," etc.

Problem-solving teaching is directed toward a study of the methods basis of military economics. As is known, the modern scientific and technological revolution has strengthened even more the dependence of war and military affairs on the economic factor. The presence of military economics subjects in the course on economic theory allows students to master skills in economic analysis and to become acquainted with the functioning mechanism of the military economy. Their future work in the troops is unthinkable without this. Such a program orientation ensures closer contact between economic sciences and the military and special disciplines.

The work investment spheres of an academy's graduates must also be considered. The teaching of political and military economies would border on enlightenment without the necessary "shaping" of the course and without orienting it to a specific audience. The proposition, expressed by comrade L. I. Brezhnev during the October (1976) Plenum of the CC CPSU that "our economic thinking must be as concrete as possible," is completely applicable here.

The presence in the course of special topics, devoted to a criticism of modern anti-Marxist economic theories and to the unmasking of bourgeois, reformist and leftist views on the problems of socialist economics, strengthens party spirit in teaching and enriches the students with skills in logically unmasking hostile anticomunist concepts.

Finally, it is important to emphasize that problem-solving teaching provides for the use of various and more progressive training methods. Among these are: individual interviews on the individual works by V. I. Lenin containing a profound analysis of economic questions, the preparation of papers on military economics problems, and training production classes in enterprises .

* * *

Problem-solving training is continually in the field of view of the academy's soviet, the command element, the political section, and the party organizations of the appropriate faculties and departments. In particular, I would like to single out a scientific and methods conference during which the tasks of each department in preparing qualified command and engineer specialists were outlined, based on the USSR Minister of Defense's requirements. The academic symposium of instructors on the subject "The Problem-Solving Lecture. What Should It Be?" was fruitful. During a recent instructional methods assembly of instructors in the social sciences department, the chief of the academy's political section, Lt Gen V. Orlov, stressed in his report the instructional methods aspects of teaching Marxist-Leninist theory. This, properly speaking, determines the effectiveness of the problem-solving training of officers with higher qualifications.

Problem-solving training is also one of the most important trends in our interdepartmental work. Very likely, there has not been a departmental meeting or party meeting where this topic has not been subjected to a deep analysis under some aspect or other. During the past training year, questions concerning methods of giving problem-solving lectures, conducting seminars and individual interviews, and writing papers were discussed more than once at a seminar of department instructors. During an interdepartmental seminar in which instructors from the course on specific economics participated, methods for conducting training production classes were examined in addition to instructional methods questions on cost accounting in military enterprises.

We consider the task--to reflect the materials of the 24th and 25th party congresses and Central Committee plenums and the resolutions of the CC CPSU in the training process as purposefully as possible--to be the core of the department's organizational and instructional methods work. This is under-

standable. Party congress documents not only enrich the theory and practice of building communism and defending socialist accomplishments. They are also a training and indoctrination method themselves. We are endeavoring from class to class to systematically bring to the students' awareness of the fundamental theoretical propositions of the 25th CPSU Congress in the area of further developing Soviet economics from the standpoint of the pressing problems in Soviet military construction and of the latest achievements in military science and practice.

It is difficult, for example, to get a contemporary picture of the economic foundations of a state's military might and of the dynamics of its military, economic, scientific and technological potential without mastering the changes in the industrial structure of physical production and the components of the party's present economic strategy. One cannot thoroughly understand the process of improving Soviet military doctrine in its economic aspect without considering the correlation of economics and politics during the stage of mature socialism and the growth in the role of control in all spheres of our society's life. It is advisable to organize purposeful publicizing of the social, economic, military and technical advantages of developed socialism in combination with a well reasoned critique of anticommunist theories, especially the military economic concepts of contemporary militarism.

Or let us take another question. As is known, the thesis, "The Tenth Five-Year Plan is a five-year plan of efficiency and quality" concerns not only economic construction. In the teaching process, we are trying to show that this very strict economic policy is an authoritative demand of the times and a real necessity for every military collective. In this connection, we are throwing light on the significance of the CC CPSU resolution, "Concerning the Improvement of the Workers' Economic Education" (1971) and of that place in the CC CPSU report to the 25th party congress where it mentions the economic training of cadres. Of course, we have our own specific nature. However, it is necessary to remember that any measure, connected with the satisfaction of defensive requirements at all levels, needs a solid economic foundation.

Unfortunately, the view exists that economic literacy is needed more by military engineers who are concerned with the capital investment in military production, with the economic criteria for weapon system and combat equipment effectiveness, etc. All this is true. However, do one-man commanders at various levels not constantly run into the necessity to manage military economics economically, to regard the operation of military equipment economically, etc.?

It is quite evident that it is difficult at the present time to picture a well educated general or officer, be he a commander or engineer, without the skills in military economic thinking which are necessary not only in understanding large scale economic problems but also in making this or that private decision.

The party's requirement to orient on the final result in any work is also our unalterable task. It is now insufficient for an instructor to rely primarily on the students' mastery of a certain number of facts. It is important to inculcate in the students an ability to enlarge their knowledge on their own and to pattern their behavior on the swift flow of scientific and military-technical knowledge.

It seems that the systematic and methodical "working out" in the department of the problems mentioned above and other ones, which arise during the teaching process, provides favorable opportunities for bringing the fundamental propositions of the 25th CPSU Congress and of other party documents to the students more completely. Along with this, purposeful and methodical work unites the department's collective and allows each instructor to grow professionally and creatively show his worth. In this connection, I will mention that during the last training year the department prepared and published four training handbooks for the academy and dozens of items on technical systems to be used while instructing on pressing political and military economic questions for the military scientific society's circle. This work is all the more necessary since the students, engaged in the new program, still lack a special political economic textbook.

* * *

Sufficient time has passed since the start of the problem-solving teaching of the political and military-economic course to make an initial summation of the experience accumulated in the academy. One must point out with satisfaction that the new course permits the tasks about which we talked above, to be solved more successfully. Officers in the command and staff and military engineer specialties get an opportunity to master the latest achievements in Marxist-Leninist economic science and to enrich their previous political economic ideas with fresh knowledge on fundamental questions concerning the development of modern capitalism's and mature socialism's economies. All this is achieved by the joint use of various training methods.

The lecture, of course, is the leading form of problem -solving training. This is not only because almost half of the scheduled classes are allotted to lectures. The main reason is that lectures arm students with the correct method for studying economic problems. They enrich them with new scientific conclusions and operational information. One can site as an example the lecture, "Marxist-Leninist Political Economy During the Modern Era," which V. Volodin, a senior instructor in the department, gave.

Let us point out first of all that the lecturer managed to avoid the "temptation" of general discussion. Having very briefly reminded the students of propositions which were known to them from the introductory lecture of the general VUZ course, he placed the main stress on boldly showing the place of political economics in the scientific system and expanding the boundaries of the subject under the conditions of developed socialism

and the scientific and technical revolution. When speaking about the class and party nature of political economics, the instructor invariably threw light on its growing role in the revolutionary transformation of the world and in the modern ideological struggle between the two systems. Marxist-Leninist economic theory is a creative science closely linked with revolutionary struggle practices and the construction of communism. Its mastery is also an objective necessity for military cadres.

The lecture's success is explained by the fact that the students clearly discerned during it the "mechanism" of the evidence and the chain of the lecturer's arguments as if they were direct participants in his cognitive work.

The effectiveness of problem-solving training is more fully shown by jointly combining lectures with problem-solving seminars. An example of such a class is the seminar which was held on the topic, "The Leninist Theory on Imperialism and the Distinctive Features of the Modern Era in the Development of Monopoly Capitalism," by Yu. Demura, a senior instructor in the department. Taking into consideration the fact that the social and economic essence of imperialism had been mastered earlier by the students, the leader directed the discussion to a deeper explanation of the new phenomena which are inherent in modern imperialism.

Capt V. Krokhin, Maj V. Zagorodnyuk and Lt Col V. Kharitonov, using materials from the 24th and 25th CPSU congresses and the Conference of European Communist and Workers Parties (1976) and factual data published in domestic and foreign publications, presented the characteristics of imperialist militarism and its role in intensifying the arms race and in opposing the relaxation of tensions. The seminar leader helped the students by means of some leading questions to not only determine the causes and consequences of the deepening over-all crises in capitalism and the sharpening of all its contradictions but also to unmask in a well reasoned manner modern bourgeois economic concepts.

Problem-solving teaching allows the universal historical experience of real socialism, its economic conformity to law, the socialist economic mechanism, and the scientifically based economic policy of the CPSU to be revealed more fully. There was great activity and lively discussion during each class on the economics of developed socialism. Undoubtedly, thoughtful and painstaking work by the instructor and independent preparation by the students preceded them each time especially as this had not been provided for, generally speaking, for a number of planned lectures.

Of course, independent work is primarily the direct duty of each student. However, its effectiveness increases a lot when instructors and the department direct it and help to organize it in the best way possible. The experience acquired in conducting seminars convinced V. Talanov, a senior instructor in the department, that an active discussion of economic problems in accordance with the seminar's plan could not always be achieved without considering problems which had been raised in advance during the lecture and without supplementary questions which stimulate discussion.

In order to arouse in the students a desire to express their opinion and to give a creative character to the seminar on the topic, "The System of Socialism's Economic Laws," the instructor selected in advance and assigned the group those questions which required not a simple statement of theoretical propositions but an explanation of actual phenomena in our country's economic life based on objective laws and the incorporation of the party's economic policy into their thinking. The seminar permitted not only the substance and operation of the system of socialism's economic laws to be explained but also the thorough scientific basis of the decisions of the 25th CPSU Congress to be understood better. It became not a training ground for training the students' memories but a real laboratory of creative thinking.

A distinctive type of class is the individual interview. In this, the student is one on one with an instructor who determines the results of the former's independent work and the level of his mastery of the main questions on a number of topics in the course. The experience acquired in conducting interviews corroborates the fact that the officers carefully studied the recommended literature while preparing for them. They acquire skill in using Marxist-Leninist political economic methods to solve specific economic tasks in the forces. For example, during the individual interviews conducted by assistant professors V. Kartsev, P. Kudryavtsev and P. Svishchev, it turned out that the students, armed with political economic knowledge, had mastered the content of military economics as a science very fruitfully and freely operate with its categories.

The same is also achieved to some degree during training production classes at enterprises. This is a new progressive form of problem-solving training. It is a class in accordance with the training program which is conducted considering the students' specialties and which is based on firmly established ties with a definite enterprise. Each time, the department and production representatives compile a class plan in advance. In it, the discussion of theoretical questions is combined with an explanation of contemporary problems in economic practices.

Finally, there is another--completely new--form of problem-solving training. This is the preparation and conduct of final theoretical conferences with the students. The conferences conducted in the spring of this year on the subject, "A Highly Developed Economy Is the Most Important Achievement of the Soviet People During the Past 60 Years," contributed a lot to the intensification of the students' military scientific creativity.

The problem-solving study of political and military economics in combination with the other social and special disciplines assumes the students' firm orientation toward creative activity and active intrusion into the solution of vital problems in the theory and practices of military affairs. The continual contact with science in close connection with practice creates in the students' collective a business-like microclimate which helps students to understand the necessity for solid economic training. This provides a situation more favorable for forming their scientific world outlook.

The instructors strive to see that the academy's graduates are able to think economically and make serious decisions. Under our army conditions the ability to think economically means the ability to achieve teamwork and efficiency in the military economy skilfully, to use material values economically, to operate combat equipment and weapons efficiently, and to take care of them. Thus, the mastery of economic knowledge, which develops in the students a psychology of "economic sharpness," contains in itself an educational aspect.

The academy's experience testifies that the complicated tasks, which arise during the students' military economic training, are successfully solved only with the closest link between teaching and life. Scholastic theorizing, as was pointed out during the 25th CPSU Congress, can only hamper our forward movement. Only a tie with practice raises the effectiveness of science and contributes to its creative knowledge. Today, this is one of the central problems.

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MEDICAL SERVICE CONTRIBUTIONS TO TROOP WELFARE DISCUSSED

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[Article by Maj Gen K. Fedorov, deputy chief of the Central Military Medical Directorate of the USSR's Ministry of Defense for political affairs to the all-army conference to improve troop life: "The Contribution of Military Physicians"]

[Text] Along with all Soviet people, military physicians are persistently struggling to carry out the socialist obligations undertaken in honor of the 60th anniversary of Great October. They are proudly aware of the fact that the Soviet public health system has become the most progressive in the world thanks to the Communist Party's constant concern for the people's health.

Leninist principles for safeguarding the people's health--state nature, development according to plan, free--have been converted into a fact in our country. Preventive work, whose goal is a constant check on the population's health and timely prevention of disease, is acquiring an ever broader character.

The Communist Party regards the people's health as the most important component of our public wealth. When speaking about the significance and prospects for the development of the Soviet public health system, comrade L. I. Brezhnev, general secretary of the CC CPSU and chairman of the Presidium of the USSR's Supreme Soviet, pointed out that there is no more important social task than concern for the Soviet people's health.

A powerful material and scientific public health base has been created in the country during the 60 years of Scviet power. The capacity of hospitals is now 3,012,000 beds. There are 5,500 sanatoriums and rest homes in our country. We occupy first place in the world in providing doctors. The Tenth Five-Year Plan is opening up new prospects and opportunities for developing the public health system.

Safeguarding the peoples has been elevated to the rank of laws in our state. This has been reflected in various legislative acts. One of the articles in

the draft of the new constitution for the USSR states: "Citizens of the USSR have the right to health protection." The most important measures which ensure the practicable implementation of this most humane human right, have been outlined.

The military medical service is performing large and crucial tasks. Military physicians made a large contribution during the years of the Great Patriotic War to the cause of achieving victory over fascism. They returned tens of thousands of Soviet fighting men to action. They fought for their lives under the most difficult conditions and, when required, they fought the enemy shoulder to shoulder with the fighting men with a weapon in their hands.

Military physicians are also doing a lot during peacetime to preserve and improve the health of servicemen. All conditions necessary for their successful work have been created. Dozens of hospital and medical bodies, unit medical aid posts, infirmaries and polyclinics have been constructed during recent times. They have modern technical equipment. New and the most modern methods for diagnosing and treating illnesses are being introduced into medical practices. The medical inspection of military work conditions and the surrounding environment has become stricter. A broad complex of measures on preventing infectious diseases is being conducted. Much has also been done to improve the men's living conditions, nutrition and rest organization. This has had a beneficial effect on the health condition of all categories of servicemen.

The military medical service has available well trained and ideologically mature cadres of military doctors who are devoted to the cause of the party and the people and who carry out their service duties with a high sense of responsibility. Troop exercises and maneuvers, which have been conducted during recent years, have shown that military physicians are capable of performing the tasks assigned them with high quality under the conditions of modern warfare. Their selfless labor receives a high rating from the Communist Party, the Soviet government, and the USSR's Minister of Defense. During the last five years about 600 doctors have been awarded USSR decorations and medals and 123 individuals have been given the honorary title of honored doctor of the RSFSR.

Along with this, military physicians recognize that the present stage in the development of the Soviet armed forces confronts them with new problems directly connected with further improving medical support for the troops. Indeed, it is difficult to overrate the role of medical control, let us say, in organizing the troops' combat training activity, in the men's moral and psychological training, and in solving questions on psychophysiological and professional selection when staffing military training institutes and various links in troops collectives.

A very important task is also the further improvement of medical prophylactic work in the forces and medical establishments--from implementation of the newest methods of diagnosing and treating diseases and the full and effective

use of various types of existing equipment for these purposes to concern for the medical welfare of the servicemen, the improving of the organization of their living conditions and nourishment, and measures for safeguarding the environment. This, in its turn, will depend on how military physicians improve their military and special knowledge, how they perform scientific research on the most important problems in medical support for the troops, and on how they use progressive experience in their practices.

The preparations for the 60th anniversary of Great October and the draft of the new constitution for the USSR have evoked in military physicians high political and work enthusiasm and have increased their activity in socialist competition. Among the medical workers in the armed forces, the initiator of the socialist competition in honor of the 60th anniversary of Great October is, as is known, the collective of one of the oldest medical establishments in the Soviet army--the District Military Clinical Hospital imeni Z. P. Solov'yev of the Order of Lenin Leningrad Military District. All military medical personnel followed its example. The fact that the preparations for the all-army conference on improving the life of the troops are taking place and that a competitive inspection is being held for the best troop (ship) and financial management in a troop unit, the best establishment and trade and services enterprise, intensifies the struggle to carry out assured socialist obligations successfully.

A peculiarity of socialist competition during this stage is the fact that it has become a truly mass movement and embraces literally all aspects of the collectives' lives. At its basis is the struggle for a communist attitude toward work, for the achievement of high indicators in combat and special training, for increased effectiveness and quality in the work of each collective. Competition has become a powerful means to increase combat readiness and creative initiative, to form a feeling of collectivism, and to instill in medical physicians a high sense of responsibility for the performance of tasks in preserving and improving the fighting men's health.

All this has found concrete expression in the socialist obligations of the initiator of the competition to greet the 60th anniversary of Great October in a fitting manner--the District Military Clinical Hospital imeni Z. P. Solov'yev. In particular, no less than two-three new methods for diagnosing diseases and treating the sick will be incorporated in each section over the year. A total of 75 percent of the doctors actively participate in scientific research work. During the current year three theses for a masters' degree will be prepared for defense. The hospital's employees were required to develop and incorporate no less than 70 streamlining suggestions directed toward improving the medical process and treating the sick. Effective measures were outlined for improving consultation and practical help for military doctors. Concrete obligations were adopted by the nurses and attendants.

A lot of attention is devoted in socialist competition to questions on creating a healthy and creative atmosphere in collectives and on further

strengthening the authority of medical establishments. A significant place is devoted to the tasks of observing an economical policy in financial and material resources.

The conduct of competitive inspections for the title of best in a profession has become a firm practice. Each year these competitions embrace an ever wider circle of professions. They are also now conducted among nurses, laboratory assistants and workers in the service area: cooks, waitresses, drivers, and electricians. Besides the fact that the competitions themselves provide an opportunity to demonstrate high skill, they perform a large educational role by strengthening high respect for work, its importance and significance. The constant concern of commanders, political workers and party organizations for the conduct of these competitions in a business-like situation leads to the fact that the competitions are becoming a real school of progressive experience.

It is necessary to say that many political organs attach serious importance to the publicizing of progressive experience. They are doing a lot so that it will become the property of everyone.

In this respect the political section of the Simpheropol'skiy garrison's special unit, headed by Colonel I. Kucher, deserves kind words. An inter-medical soviet has worked for the political directorate for a number of years on social principles. Its composition includes experienced political and medical workers and representatives of the maintenance services. The soviet organizes scientific and practical conferences during which the newest treatment and diagnostic methods are discussed as are questions on organizing the socialist competition of collectives and political and work indoctrination of personnel. Once a quarter the soviet holds open-door days which acquaint military physicians with the way these questions are formulated directly in infirmaries.

The results of the socialist competition in medical establishments are being summed up and carefully analyzed in the Leningrad Military District with the active participation of political organs. Conclusions and recommendations are summed up in the district's medical section and then discussed in the medical bureau, at meetings of the directing staff of the medical service, at party, Komsomol, trade union meetings, and at garrison and hospital conferences. The more valuable recommendations and suggestions are included in the annual plans for the work and services of the medical units and establishments in the district. Progressive experience is brought to the general public in documents and reviews by major specialists and in their presentations at meetings and assemblies. For example, Col Med Svc I. Naydanov, secretary of the medical section's party organization and the district's chief radiologist, spoke on this when appearing at meetings.

Matters are also well arranged with respect to the organization of socialist competition and the summation and dissemination of progressive experience within the subunits of the Krasnodarskiy garrison.

Along with this, here and there shortcomings have not been eliminated in the organization of socialist competition. Such points as "to treat the sick sensitively and carefully," "to fill the doctors' prescriptions on a timely basis," etc. are still encountered in the obligations of individual medical workers although these are the direct official duties of each medical worker. The summing up of competition results sometimes only boils down to determining winners. There is no deep analysis of the state of affairs and no working up of concrete measures which would overcome shortcomings and provide the required help to those lagging behind.

In a number of places socialist competition is used with insufficient effectiveness as a school for instilling a communist attitude to work and as a means for increasing the quality and refinement of the personnel's medical treatment.

The elimination of elements of formalism in competition is a task of great importance. A special role in its solution belongs to our aktiv--the communists, the shock troops of communist workers, and the teachers of youth.

Now, in connection with the preparations for the all-army conference on improving the life of the troops and with the conducting of a competitive inspection, the work of further improving medical support, increasing the quality and effectiveness of the work in medical preventive establishments, and improving the material technical base has been placed on a broad footing.

Much has been done in this respect, for example, in the Belorussian Military District. Here, they display continual concern for improving the equipment in regimental medical points, infirmaries and hospitals and creating in them all the conditions necessary for providing medical aid and treating the sick. Concrete measures are being implemented to improve the treatment of those needing medical help and the accuracy and organization of the work in the establishments.

Experience shows that the successful solution of the complicated tasks facing the military medical service, depends a lot on the skilful organization of party and political work in all its sections. Where they devote serious attention to the selection of cadres of political workers for medical establishments and to the study of their work practices, things go better. That is the way it is, for example, in the Baltic, Leningrad, Belorussian, and Carpathian military districts, the Group of Soviet Forces in Germany, and in the Baltic fleet. It has become a rule here for the leading workers in political organs to take a direct part in the conduct of special medical exercises and scientific and practical conferences for doctors.

Working with the highest sense of responsibility and with initiative, devoting every effort to the task entrusted, making a worthy contribution to the common struggle for high combat readiness in our glorious armed forces--military physicians see one of their main tasks in this.

There is no doubt that the work of preparing for the all-army conference to improve the life of the troops and the competitive inspection which is being conducted in connection with it for the best medical establishment will permit military physicians to achieve new and higher results in solving all assigned tasks and in worthily greeting the 60th anniversary of Great October.

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INSTRUCTOR GUIDE FOR INDOCTRINATION ON COMBAT TRADITIONS

Moscow KOMMUNIST VOORUZHENNYKH SIL in Russian No 19, Oct 77 signed to press
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[Article: "The Combat Path and Traditions of a District (Fleet), Large Unit, Unit (Ship)"]

[Excerpts] This topic has great indoctrinal importance. The purpose of the classes consists of acquainting young soldiers and sailors with the most important combat traditions of the Soviet army and navy and with the combat path of the district (fleet), large unit, unit (ship) where the fighting men will serve --and by this induce the young defenders of the motherland to follow the glorious combat traditions and increase them by excellent training and exemplary service.

A total of two hours are allotted for studying the subject. It is recommended that the class be conducted using the story and lively and detailed discussion method. It is advisable to concentrate the students' attention on the following basic questions: 1. The essence and importance of the Soviet armed forces' combat traditions. 2. The combat path and traditions of the district (fleet), large unit, unit (ship). 3. The young soldiers and sailors are the successors and continuers of combat glory.

It is desirable to preface a small introduction with a statement of the basic subject material. It is necessary to point out in the introduction that Soviet armed forces are standing guard over the great socialist accomplishments, the peaceful labor of the Soviet people, and the sovereignty and territorial integrity of our state. Article 31 of the draft constitution for the USSR says: "The duty of the USSR's armed forces to the people is to reliably defend the socialist motherland, to be constantly combat ready guaranteeing an immediate rebuff to any aggressor."

The armed forces of the first socialist state in the world were born in 1918. V. I. Lenin stood near their cradle. Our country will soon mark a wonderful jubilee--the 60th anniversary of the Soviet armed forces. During these years, they have travelled a heroic combat path under the leadership of the Leninist party. It was pointed out during the 25th CPSU Congress that our glorious armed forces are the pride of the Soviet people, that they are

protecting the cause of the revolution, socialism and peace between peoples, and that there has never been in history an army which would serve such humane and great purposes and ideals.

Comrade L. I. Brezhnev said in the report of the Central Committee to the 25th party congress: "... the Soviet people can be confident that the fruits of its constructive labor are under reliable protection" (*Materialy XXV s"yezda KPSS* [25th CPSU Congress Materials], p 83). This high rating by the party inspires the fighting men to selfless military work. Along with all the Soviet people they are actively participating in communist construction. They are waging a persistent battle to implement the historic decisions of the 25th CPSU Congress. Soviet fighting men are ready to greet the 60th anniversary of Great October and the 60th anniversary of the Soviet armed forces in a fitting manner. They approve with all their heart the decisions of the May plenum of the CC CPSU and the draft of the USSR's constitution. There is no higher honor for them than to serve their native motherland and to be its reliable defenders.

The next in turn younger generation, which is pouring into the ranks of our glorious armed forces, is deeply aware of their sacred duty to defend the Soviet motherland. It is taking the baton of combat glory from their predecessors. It is becoming a continuer of the heroic traditions of the Soviet army and navy.

When completing the introduction, the propagandist emphasizes that for young fighting men to follow combat traditions and to piously preserve and add to them today means the unbreakable observance of the requirements of the military oath and troop regulations and the irreproachable performance of procedures established in the army and navy. It means to be disciplined and to be persistent in improving one's military and political knowledge.

1. The essence and importance of the Soviet armed forces' combat traditions.

It is customary to consider as traditions the historically shaped and settled customs, rules and standards for people's conduct, which have been passed from generation to generation and which have been amassed and have become a moral law for certain population groups, collectives, classes and entire peoples.

The changing of generations is constantly taking place in society. Each generation leaves its successors material values, scientific and cultural achievements as well as customs, standards of conduct and rules for mutual relations between peoples.

Life has shown that the movement for progressive large units has given a new impulse to socialist competition in the army and navy. It has put new reserves into operation. It has stirred up the servicemen's creative thought and energy. The enormous inspirational and mobilizing force of combat traditions is shown in this.

It is necessary to emphasize in the story (discussion) that the struggle for

the good name and honor of his large unit is a concrete expression of Soviet fighting men's love for their army and of their yearning to strengthen in every way possible the combat readiness of the Soviet armed forces. The division in which this or that fighting man serves, is dear to him because of what sets it apart and distinguishes it from others. Some soldiers say with pride that our division was the first to force the Dnieper; others say that our division was the first to become a guards division; still others declare that our division was the first to advance onto the territory of fascist Germany. Each veteran, yes and each of today's fighting men will find in the history of their large unit a great number of very bright pages forming a little part of our armed forces' combat annals.

It is important for the propagandist to concentrate the students' attention on the fact that the men's success in this or that large unit will depend not on good luck and not on accidental coincidences but on work. To struggle for the honor and glory of his large unit, for it to be called a progressive one in the district, group of forces, fleet, branch of the armed forces--and based on arms and services, in the airborne forces, railroad or special troops--means working indefatigably at the high quality performance of combat and political training plans and the complete carrying out of socialist obligations.

When completing the account of the subject material, it is necessary to emphasize that following combat traditions and sacredly preserving and adding to them today means to treat training and service conscientiously, to know and carry out one's duties in an excellent manner, to master combat equipment and weapons skilfully, to endure any burden and deprivation of military service staunchly, to spare no efforts and, if necessary, life itself in order to carry out one's military duty to the end.

It is desirable to hold the class on this subject in a museum or room of combat glory, making wide use of the stands and documents devoted to the combat journey of the large unit, unit and ship, and other relics which are located there.

During the story and discussion one can ask the students the following questions: 1. What is the primary importance of the Soviet army's and navy's combat traditions? 2. What are the most important combat traditions of the Soviet armed forces? 3. Tell about the combat journey or history of your unit or large unit (ship).

For independent study one can recommend to the students V. I. Lenin's work, "Speech at the Unveiling of the Memorial Board to the Fighting Men of the October Revolution, 7 November 1918" (Poln. sobr. soch.) [Complete Collection of Works] Vol 37, pp 171-172); L. I. Brezhnev's report, "Account of the CPSU Central Committee and the Next Tasks of the Party in the Area of Domestic and Foreign Policy" ("Materialy XXV s"yezda KPSS," Politizdat, 1976, pp 75-76, 83); and Chapter 16 of the textbook, "Na Strazhe Rodiny" [In Defense of the Motherland] (Voyenizdat, 1974).

In the story and during the discussion it is advisable to use memoirs and correspondence with veterans from their unit (ship)--the participants in the battles.

Literature for propagandists

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4. Brezhnev, L. I. "On the Draft of the Constitution for the Union of Soviet Socialist Republics. Report to the CC CPSU Plenum, 24 May 1977" in PRAVDA, 5 June 1977.
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KOMSOMOL'S ROLE IN STRENGTHENING DISCIPLINE DISCUSSED

Moscow KRASNAYA ZVEZDA in Russian 15 Nov 77 p 1 LD

[Editorial: "Komsomol Concern for Military Discipline"]

[Text] Army and navy servicemen have finished the training year with good results. New, higher indicators have been achieved in combat and political training, the ranks of qualified specialists and soldiers with excellent results in training have increased and a new step has been taken in improving combat readiness. The results of the training year testify that the successes and achievements are most considerable wherever organization and discipline are higher and wherever the questions of further strengthening it are constantly at the center of the attention of commanders, political workers and party and komsomol organizations.

The strengthening of military discipline has always been and remains one of the most important of the responsible tasks confronting army and navy komsomol organizations. Komsomol members and young people constitute the overwhelming majority of armed forces personnel. Regulation order and organization in units and on ships and the level of their combat readiness depend to a great extent on how komsomol organizations help commanders to solve the questions of further strengthening military discipline and on the degree to which exemplary behavior on the part of every komsomol member is insured.

As is well known, military discipline in the Soviet armed forces is based on the high political consciousness of servicemen, on their profound understanding of their patriotic duty and our people's international tasks and on their patriotic duty and our people's international tasks and on their selfless devotion to their Soviet motherland, the Communist Party and the Soviet Government. All this obliges army and navy komsomol organizations, working under the leadership of party organizations, to display constant concern for enhancing the ideological tempering of komsomol members and young people and to work actively and purposefully to propagandize the successes achieved in the 60 years of Soviet power, the tasks of our armed forces and the demands of the oath and the military regulations. The work to inculcate in everyone responsibility for the fulfillment of his service duties and an intolerant attitude toward antisocial actions must be intensified. All this activity by komsomol organizations must be aimed at solving the main task confronting our armed forces--the enhancement of combat readiness.

In order to solve these questions the army and navy komsomol organizations make wide use of forms and methods of work which have been proven by practice and which have shown their worth. There is the Leninist examination "implement the 25th CPSU Congress decisions!", the review to find the best komsomol organization in terms of fulfillment of the party congress decisions and others. Komsomol organizations are participating actively in propagandizing the country's fundamental law and in explaining in depth to servicemen the rights and duties of the USSR citizen, of which military service is one of the most responsible and honorable.

This work, which is being carried out purposefully and unswervingly, is yielding good results. Take, for instance, the "N" artillery regiment, where Senior Lt P. Florov is secretary of the komsomol committee. The regiment's personnel have finished the training year with good results and the socialist pledges have been successfully fulfilled there. Nor are there any serious violations of military discipline in the regiment, which is explained to a considerable extent by the fact that the komsomol organization gives the commander great help on the questions of strengthening discipline. Much attention is paid there to propagandizing the demands of the oath and the regulations, the experience of the work of the best collectives to maintain military discipline at a high level is skillfully disseminated and great importance is attached to insuring that every komsomol member sets a personal example in service and discipline.

However, in units and on ships there are instances where komsomol members and young soldiers commit disciplinary misdeeds. This happens because the effectiveness of komsomol work to strengthen military discipline is low in some places. Komsomol committees carry out many measures aimed at strengthening discipline: Lectures, reports, thematic evenings. But the trouble is that certain komsomol activists regard their duty as discharged when they have reported that such measures have been carried out. However, it is necessary to see one's task as skillfully combining mass measures with individual work with people. It is necessary to be more persistent in teaching the aktiv the practice of work with every komsomol member and young soldier--in the companies, batteries and squadrons which are the centers of political education work.

Army and navy komsomol organizations must display particular concern for rallying military collectives. It is a matter of honor for every komsomol organization to help the commander and the party organization to create in the subunit a unified, harmonious combat family which lives for the common interests and to prompt everyone to proceed primarily from the interests of the collective in all his deeds and actions. It is necessary to oppose resolutely any attempts by individual soldiers to place themselves in a privileged position with regard to young soldiers, and intolerance must be displayed toward the slightest manifestations of conceit and arrogance by certain komsomol members.

It is necessary to make fuller use of the experience of individual work accumulated during the period of the exchange of komsomol documents. At

that time individual interviews with komsomol members were actively held and reports by them were heard at meetings and komsomol bureau and committee sessions. A personal, confidential talk reveals a person more completely than anything--something which makes its possible to influence him effectively. When reporting to his colleagues at a meeting a komsomol member feels most acutely his responsibility for his deeds and actions. This positive experience must be developed and enriched in every possible way. Particularly favorable conditions have been created for this now, when reports and elections are going on in army and navy komsomol organizations and when they have begun to prepare actively for the 60th anniversary of the USSR armed forces and the 18th All-Union Komsomol Congress.

When educating komsomol members and young people in the spirit of communist morality, more attention should be paid to the questions of enhancing their general culture and moral and aesthetic education and organizing leisure in their free time. Komsomol committees and bureaus must teach activists the practice of carrying out cultural and mass sporting work and organizing young people's leisure on their days off and on the days before their days off. This is important because misdeeds are often committed on precisely these days and, as a rule, where commanders, political workers and party and komsomol activists are little concerned with how best to organize leisure and how to occupy personnel's free time.

In their life and service komsomol members follow the example of their senior comrades--Communists, discipline, smartness, a friendly approach to people and principledness are learned from them. And it is important for every communist to constantly exert a good influence by word and deed on komsomol members and young people and to set an example of diligence, high morality and strict observance of the demands of the oath and regulations.

The new training year will soon begin in the army and the navy and soldiers will have to solve new, still more important tasks. Strong military discipline is the guarantee of their successful fulfillment. And while he participates in the struggle to strengthen military discipline, let every komsomol member and every young soldier remember the party's instruction that the more complex the task is, the more complex the work is, the more important are coordination, harmoniousness and discipline--everything that can be defined as high organization.

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CPSU LEADERSHIP OF THE ARMED FORCES EXTOLLED

Moscow KRASNAYA ZVEZDA in Russian 29 Nov 77 p 1 LD

[Editorial: "The Source of Our Victories"]

[Text] The land of the Soviets has entered its seventh decade in the full flower of its creative strength and full of creative energy. The remarkable results of its heroic path and the tremendous potential and extensive and fine prospects for the development of the mature socialist society which has been created in the USSR were comprehensively revealed in the report "Great October And the Progress of Mankind" by Comrade L.I. Brezhnev, general secretary of the CPSU Central Committee and chairman of the USSR Supreme Soviet Presidium. "The Soviet people," Comrade L.I. Brezhnev noted at the Jubilee Ceremonial Session in the Kremlin, "look to the future with confidence. They know well that life will become increasingly better, more beautiful and fuller. The guarantee of this is the labor of millions of men and women--selfless labor inspired by the ideals of communism. The guarantee of this is the Leninist, scientifically based policy of the Communist Party."

CPSU policy, which expresses the fundamental interests of the Soviet people and is based on Marxist-Leninist teaching, encapsulates all the wealth and diversity of the living links which join the party and the masses. This policy, which is entirely in accordance with the objective demands and law-governed features of the progressive development of society, is a decisive precondition for revolutionary creation and the creative activity of the masses.

The insuperable strength of our party's transforming activity lies precisely in the fact that it is invariably supported by the masses and their revolutionary energy, creative activity and initiative [samodeyatelnost]. The CPSU elaborates its decisions on the basis of in-depth Marxist-Leninist analysis of the urgent demands of social development and everything engendered by the experience, labor and efforts of millions of people. That is why the decisions of our party are notable for their high level of efficiency. That is why they evoke the wholehearted approval and unanimous support of the Soviet people. That is why the struggle to put them into practice is the dear and vital cause of millions of people.

The CPSU sees its historic mission as the fullest possible development and consistent and purposeful exploitation of the mighty creative potential of the masses. Exercising comprehensive leadership of the building of the new society, it constantly follows Lenin's instruction that the state is strong by virtue of the consciousness of the masses. All the most important questions of political, economic, social and cultural life are discussed and resolved among us with the broadest and direct participation of workers, peasants and the intelligentsia. The nationwide discussion of the draft of the new USSR Constitution was a graphic demonstration of the unity of the party and the people and the conscientious historic creativity of the working masses of our country. More than 140 million people--over four-fifths of the country's adult population--participated in that discussion.

The Communist Party--the vanguard of the Soviet people--is the most conscious and advanced component and is inseparable from the people as a whole. Its ranks are replenished by the best representatives of the working class, kolkhoz peasantry and intelligentsia. Just over 6 decades ago, in March 1917, the party numbered 24,000 communists. By the October Socialist Revolution the working class and laboring masses were already led by 350,000 Leninist Bolsheviks. Today more than 16 million Soviet communists are marching in the vanguard of the builders of communism. Behind these figures lie the tremendous growth in the influence and prestige of the party. Behind them lies the great vital strength of its multifarious links with the masses. Behind them lies the unbreakable unity of the party and the people.

The role of the party as the leading and directing force of developed socialist society and the nucleus of our entire political system is also growing in a law-governed way. The diverse theoretical, ideological, political and organizational activities of the CPSU are becoming even more intensive. The fruitful creative work of our party's Leninist headquarters--its Central Committee and Central Committee Politburo headed by that outstanding politician and statesman of the present day, L.I. Brezhnev--is exerting an increasingly profound influence on all aspects of the life of society.

Deriving strength and energy from the unanimous support of the people, the party is directing their inspired labor toward the implementation of the impressive socio-economic program drawn up by the 25th CPSU Congress. It is doing all it can for the spiritual burgeoning of our society, the further development of our democracy, the improvement of socialist social relations, which are developing into communist relations, and the steady growth of the material and cultural living standards of the Soviet people. The successes of the CPSU's domestic policy are inseparable from the achievements of its consistent class, internationalist and socialist policy in the international arena, which is aimed at insuring external conditions favorable for building the new society in our country and other socialist countries and at further strengthening the socialist community, world peace and the peoples' security.

Army and navy servicemen, like all Soviet people, wholeheartedly approve and support the policy of the beloved party. They see the leadership of the CPSU as the decisive condition for the might and invincibility of the USSR armed forces. To the party's concern for providing the army and navy with everything necessary to fulfill successfully the sacred mission entrusted to them to defend socialist gains, the peaceful labor of our people and the sovereignty and territorial integrity of our state, Soviet servicemen respond with selfless military labor and persistent struggle to steadily increase their combat readiness. Having greeted the glorious October Jubilee with the successful fulfillment of the programs and plans for the last training year, they are fully determined to achieve new and even higher targets in the new year--the 60th anniversary of the USSR armed forces.

All that the Soviet person is justifiably proud of and in whose name he labors with growing energy and enthusiasm, that we value as priceless and cherish as our pride and joy--that is, the motherland's heroic past, joyful present and bright future--we link with the Leninist Party of Communists. And our party justifies with honor the deep love and boundless trust of the people. The CPSU, according to the USSR Constitution, exists for the people and serves the people. It has everything for it to be equal to its historic mission. It has many years of rich experience of building the new life at its disposal. Marxism-Leninism--the most advanced revolutionary science--serves as its guide to action.

The step of the land of the Soviets, which is marching under the leadership of the party of Lenin along the path of October, is confident, mighty and firm. All the experience of progress along this path confirms that our strength lies in the unity of the party and the people. This invincible unity is the vitalizing source of the steady burgeoning of our motherland and all our victories and is the reliable guarantee of the complete triumph of communism.

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SERVICE CHIEFS ON LESSONS LEARNED IN GREAT PATRIOTIC WAR*

Pavlovskiy on the Ground Forces

Moscow VOYENNO-ISTORICHESKIY ZHURNAL in Russian No 10, Oct 77 signed to press 29 Sep 77 pp 20-27

[Article by Army Gen I. Pavlovskiy, deputy USSR minister of defense, commander of the Ground Forces, and Hero of the Soviet Union: "The Ground Forces"]

[Text] During the Great Patriotic War all the branches of the Soviet Armed Forces were used in combat. Our military strategy, beginning from the fundamental principle that victory in war can only be achieved through the combined efforts of all branches of the Armed Forces, insured that each branch was used rationally.

But in the last war, the primary missions of crushing the enemy were carried out on land, and therefore the primary role fell to the Ground Forces as one of the largest branches of the Armed Forces. They had from 80 to 87 percent of all Armed Forces personnel and always constituted the basis of strategic groupings. All the most important missions given to the Soviet Armed Forces during the last war were carried out primarily by the Ground Forces. Throughout the Great Patriotic War they received the brunt of the blows delivered by the troops of fascist Germany.

The Ground Forces underwent harsh trials in the first battles of the war. They immediately received powerful blows from the enemy. By their stubborn and aggressive defense along a front 4,000 kilometers in length they drained and depleted crack Nazi troops, thus creating conditions for the counteroffensive and the defeat of the enemy in the Battle of Moscow, the most important defeat since the start of World War II. It

* Under the general title "The Great Patriotic War and the Postwar Period" the commanders of the branches of the Armed Forces tell about the results of the activities of their branches, new developments in the art of war, and the significance of wartime battle experience for the present day.

dispelled the myth of the invincibility of the fascist army and thwarted Hitler's plan of "blitzkrieg."

The Ground Forces had a hard lot in the battles of 1942. The lack of a second front allowed the fascist command to concentrate an army of 6 million opposite our forces by mid-year and to reopen the offensive in May-July 1942. At the price of great losses the enemy was able to reach Voronezh, the banks of the Volga, and the foothills of the North Caucasus. At this line the enemy was halted.

The rise of our war economy, which was a result of the enormous organizational work of the Communist Party and Soviet Government and the historically unprecedented labor feat of our people, made it possible to significantly improve technical supplies to the Ground Forces and their organizational structure. By the end of 1942 the fighting effectiveness of our forces had risen notably. The accumulated battle experience, the formation of new units, and equipping them with the best models of weapons and combat equipment created the objective prerequisites for going over to the counteroffensive and then on to a general offensive.

The counter offensive at Stalingrad was one of the Soviet Army's largest strategic operations. In cooperation with other branches of the Armed Forces the Ground Forces for the first time successfully carried out an operation to encircle and wipe out a grouping of 330,000 German fascist troops. In the subsequent years of the war this form of operation, encirclement, became the primary one.

As a result of the successful offensive actions of the Soviet Army from mid-November 1942 until late March 1943 the enemy lost more than 100 divisions. The German Army alone lost 1.2 million men during this time and the entire fascist bloc lost up to 1.7 enlisted men and officers, 24,000 guns, almost 7,400 tanks, and 4,300 aircraft.

At the beginning of the summer-autumn campaign of 1943 Soviet forces waged the Battle of Kursk, which ended with the complete rout of the Nazi forces and threatened the German fascist army with disaster. Thus the Nazi command's last attempt to recoup for lost battles and hold the strategic initiative failed. In the Battle of the Dnepr the Ground Forces in cooperation with other branches of the Armed Forces crossed the river along a broad front and breached the Eastern Wall on the run. By the end of 1943 the war had made a radical turn in favor of the Soviet Armed Forces.

In 1944 the Ground Forces together with other branches of the Armed Forces carried out a series of major offensive operations (at Leningrad and Novgorod, in the Ukraine, Karelia, Belorussia, the Baltic Region, and Moldavia), completely cleared Soviet soil of fascist occupation troops, and began liberating the countries of Central and Southeastern Europe from the Nazi yoke.

By early 1945 the Ground Forces, having accumulated rich combat experience, were superior to the enemy by more than 2:1 in personnel, almost 4:1 in artillery, and more than 3:1 in tanks. This enabled them, operating jointly with other branches of the Armed Forces, to attack simultaneously along the entire front. Together with the other branches of the Armed Forces they honorably carried out the great liberation mission and finished the complete crushing of the enemy in his own lair.

During the war the Ground Forces, with the Air Force, National Air Defense Forces, and Navy, wiped out, captured, or mauled 607 enemy divisions. This is more than three times the numerical size of the fascist ground army which invaded our native land.

In the Great Patriotic War the Ground Forces traversed a glorious path of battle. They were based on rifle, artillery, armor-tank, mechanized, and engineer units. Rifle forces were the largest arm of the Ground Forces. Able to operate under difficult terrain conditions, in any weather, at any time of the day and year, they accomplished important missions both on the offensive and in defense.

The armor-tank and mechanized forces, which were expected to be the primary striking and maneuvering force of the Ground Forces, made a major contribution to the overall victory. Their use was an essential condition for successful offensive and defensive operations.

The artillery was the chief fire force of the Ground Forces. Massive use of artillery in crucial axes often insured fire superiority over the enemy and helped the infantry and tanks attack successfully.

Communications troops, engineer units, and cavalry took an active part in the fighting. Rear units and establishments and other special forces performed important missions.

Only through close cooperation by all arms of troops was success in defeating the enemy achieved. An invaluable contribution to immediate preparation for operations and direction of the actions of Ground Forces was made by the command and military councils of the fronts and armies, political agencies, and party organizations. More than 8,000 members of the Ground Forces were awarded the title Hero of the Soviet Union for heroic feats during the Great Patriotic War.

During the war the fronts were commanded by such outstanding military leaders as I. Kh. Bagramyan, S. S. Biryuzov, A. M. Vasilevskiy, N. F. Vatutin, L. A. Govorov, F. I. Golikov, A. I. Yeremenko, G. K. Zhukov, I. S. Konev, R. Ya. Malinovskiy, K. A. Meretskov, I. Ye. Petrov, M. M. Popov, K. K. Rokossovskiy, V. D. Sokolovskiy, F. I. Tolbukhin, I. D. Chernyakhovskiy, and others.

During the Great Patriotic War there was further development and refinement of the art of war of the Ground Forces.

I will consider the main problems.

Before the war our military science considered the front [unit] to be a strategic formation of the armed forces operating in a certain strategic axis and capable of accomplishing important military-political objectives. However, the war showed that, despite its significantly increased fighting composition, in a large majority of cases fronts could not accomplish such missions with their own forces. Strategic success could be achieved only by wiping out a large enemy grouping using the forces of a group of fronts. Under such conditions the front operation was a part of the strategic operation in which the front performed a series of major operational missions. In this way, the front became an operational-strategic formation. At the same time, a new theory of the strategic operation of a group of fronts was developed and successfully applied in the Patriotic War. The role of each front in this grew substantially. In connection with this we must note the successful solution to such new issues as organizing strategic cooperation, using strategic reserves, choosing the axis of the main strike, planning operations, and others.

The enemy grouping to be defeated by the forces of a single front usually included 12-18 divisions and an army had 5-6 divisions.

Accomplishment of the missions that faced the Ground Forces in operations depended largely on creating reserves at the proper time and using them correctly. The presence of reserves during strategic defense made it possible not only to build up the forces of resistance but also to create strategic groupings for going over to the counterattack. During the strategic offensive available reserves made it possible to maintain superiority over the enemy in the chosen axis and insured development of the operation to great depths.

The creation and restoration of strategic reserves occurred in various ways. In the first and second periods of the war they were created primarily by forming reserve units, armies, and even entire fronts, while in the third period it was done by taking armies, corps, and divisions from fronts which had completed operations or, judging from the situation, would be able to perform the missions facing them with less strength.

Great art was shown in choosing the axes of the main strikes of fronts and armies. They were ordinarily pinpointed at the weakest place in the enemy defense to insure that our main grouping reached the flank and rear of the enemy main forces by the shortest route and in the shortest possible time. It was not impossible, considering the operational situation, to deliver the main strike against strong sectors of the enemy defense with the objective of wiping out the main enemy grouping with the very first strike at the beginning of the operation (the L'vov-Sandomierz, Wisla-Oder, and Berlin operations).

In all cases of choosing the axis of the main strike consideration was given to the nature of the terrain, the fighting capabilities of the troops, skillful maneuvering, the use of mobile units in the operational depth, and their cooperation with the first operational echelon and neighboring units.

Simultaneously with the main strike one or two auxiliary strikes would be envisioned to make it more difficult for the enemy to use reserves or carry out maneuvers along the front.

Main forces and means were concentrated in the chosen axis of the main strike of fronts and armies. If during the course of an offensive, however, an operation proved successful not in the main axis but in an auxiliary one, the command of fronts and even of armies would determinedly regroup main forces and means to this axis and develop the success there (the Vitebsk-Orsha and East Prussian operations for the 3rd Belorussian Front and the Berlin operation for the 2nd Belorussian Front).

During the Great Patriotic War the Ground Forces also solved the important problem of mass use of forces and means in the axes of the main strikes.

At the beginning of the first period of the war forces and means were evenly distributed along the front, but beginning in January 1942, following the 10 January 1942 directive of the Headquarters, Supreme High Command, fronts and armies began massing forces in a bold, determined manner.

The steadily growing capabilities of operational formations made it possible to create strong assault groupings. Up to 80 percent of the rifle divisions, 70 percent of the artillery, 90 percent of the tanks and self-propelled guns, and up to 100 percent of the aviation was concentrated in the breakthrough sectors, which would be 16-40 percent of the total width of the zone of attack of a front. Such massing of forces and means made it possible to achieve a decisive superiority over the enemy in the axes of the main strikes. In the most important offensive operations this superiority was 3-6 times for infantry, 6-8 times for artillery and tanks, and 2-4 times for aircraft.

It should be noted here that bourgeois historians, especially West Germans, in their attempt to find fault with our Soviet art of war, state that the Russians supposedly won through numbers, not skill. But this does not fit the facts because our superiority was not an overall superiority, it was only in narrow sectors. It takes great daring and art to create a decisive superiority in forces and means in certain main and decisive axes. That is what skill is.

I will go further. During the first years of the war the enemy had significant superiority and especially in means [equipment]. Only the ability to maneuver and use forces and means resourcefully enabled us, even at that time, to inflict large losses on the enemy during his offensive and then, having drained his strength and captured the

initiative, to go over to the counteroffensive (the battles of Moscow and Stalingrad).

Significant advances were made in the area of the operational formation of troops. The intensified enemy defense beginning in the second period of the war required a steady increase in efforts. This could only be achieved by creating stronger first, second (and in armies sometimes also third) echelons, powerful mobile groups, large reserves of all arms of troops, artillery and antiaircraft artillery groups, and mobile obstacle detachments.

The creation of mobile groups of armies and fronts (echelons to develop the success) from tank, mechanized, and cavalry units and tank armies was a qualitatively new step in operational order of battle. This made it possible to steadily build up efforts in the operational depth, increase the rate of advance when conducting operations, introduce the qualities of decisiveness and mobility, and increase the effectiveness of combat activities.

During the Great Patriotic War the important problem of breaking through a deeply echeloned enemy defense and through strong fortified regions was solved. Overcoming the deep (100-150 kilometers) defense of the Nazis depended above all on successfully breaking through the tactical zone of defense. This mission was accomplished by a powerful strike against the enemy defense with continuous artillery and air support for the attacking forces.

After crossing the tactical zone of defense there would be extensive maneuvering and operational envelopment and encirclement to surround large enemy groupings, break them up, and destroy them. As the Ground Forces accumulated experience the encirclement, breaking up, and mopping up of the enemy became a single process. In most of the operations while the offensive continued on the outer front of encirclement forces on the inner front would immediately begin breaking up the enemy and wiping him out.

The organization and conduct of pursuit underwent substantial change; pursuit was carried out at a high pace and great depth, day and night. Parallel pursuit combined with strikes from the front, the most advantageous method, became the primary method. In this the leading part was played by tank units and formations which went 60-80 kilometers and sometimes even more ahead of the rifle units. Forward detachments had an important part; their swift actions helped achieve a high rate of advance.

Skillful crossing of water obstacles on the run was a new and important contribution to development of the art of war. The Desna, Dnepr, Wisla, Oder, and other rivers were crossed in this way. Success here was achieved by advance planning for the crossing, careful preparations and carrying it out on a broad front, using maneuvering with forces and means, aggressive actions by forward detachments, and attempting not just to capture a beachhead but also to develop the offensive.

The Ground Forces also gained a great deal of experience in organizing cooperation with other branches of the Armed Forces and cooperation among arms of troops. Cooperation was organized among fronts operating in a single strategic axis and groups of fronts operating in different axes.

On defense the organization of strategic cooperation among fronts envisioned combining defensive and offensive operations in a number of strategic axes or among several fronts operating in a single axis; it was expressed by joining their efforts to accomplish the strategic mission.

Skillful organization of cooperation and coordinating the actions of the branches of the Armed Forces helped decisively rout the main enemy grouping, which then insured development of the front (group of fronts) offensive operation to great depth and achievement of strategic objectives.

To conclude the discussion of operational art and not disperse the reader's attention I should remark that the art of defensive operations also developed further during the Great Patriotic War. This involved increasing the depth of the defense and battle order, massing forces and means in the assumed sectors of enemy assaults, an increase in maneuvering and troop activism and steadfastness, bolstering anti-tank defense and engineer preparations, and so on.

During the Great Patriotic War methods of organizing and waging combined arms battle were refined along with the development of the operational art of the Ground Forces.

In defensive combined arms battle a switch was made from group trenches to deeply echeloned defensive trench systems making extensive use of communications passages.

On the offensive group tactics were replaced by the echeloned extended infantry line advancing with direct tank support. The development of battle formations was towards increasing the depth and number of elements.

Offensive battle was the primary form of combat action for units of the Ground Forces.

The primary efforts of rifle divisions and corps in offensive battle were aimed at breaking through the tactical zone of enemy defense on the first day of the offensive. Special attention was directed to making a rapid break through the main zone of defense where the main forces and means of the enemy first echelon were concentrated.

In connection with this the battle mission of the rifle corps (division) was to defeat the enemy to the depth of the tactical zone of defense.

The battle mission of a corps or division was subdivided into the immediate mission, the subsequent mission, and the mission of the day. I would like to emphasize that this breakdown justified itself because it made it possible to carry out a consistent break through the enemy defense by building up efforts in the axes of the main strikes of divisions and corps during the performance of battle missions and to organize troop cooperation better by stages of the battle.

During the war years the problem of constructing battle orders in conformity with changed situation conditions was solved creatively. Combat experience confirmed the wisdom of deep echeloning. Strong regimental, division, and corps artillery groups, general reserves, artillery-antitank reserves, and mobile obstacle detachments found established places in the battle formations of Ground Forces units.

In general, during the war the tactics of offensive battle developed in the direction of a realistic determination of missions, skillful choice of the axis of the main strike, surprise in going on the offensive, massing forces and means, building up the rate of advance, carrying on extensive maneuvering during combat, and improving the organization of cooperation and control.

The organizational structure of the Ground Forces and their fighting capabilities were continuously improved as the war progressed and our mobility grew. Thus, at the end of the war the regular composition of a front had 10 times as many field guns and mortars as it did at the beginning of the war, 16 times as many tanks, and 10-15 times as many aircraft.

All this made it possible to increase the scope of our defensive and offensive operations.

For the Ground Forces the Great Patriotic War was a great school in waging combat actions under difficult conditions. The war experience has proved relevant to literally all branches of the art of war and provided material for the further development of military theory and solving practical problems of building the Armed Forces and training and indoctrinating troops and staffs.

The study and application of the experience of the Great Patriotic War has progressed on the basis of steady development of the Soviet economy improvement in the organization of military forces, quantitative and qualitative growth of weaponry, and with due regard for the views of our possible enemies concerning the development of armed forces and refining methods of waging battle.

The war showed convincingly that, as the primary branch of the Armed Forces, our Ground Forces needed to increase mobility by continued motorization and mechanization and to increase striking and fire power. These matters were given very serious attention.

In early 1954 the Ground Forces began the study of atomic weapons which had been adopted. A military-technical revolution took place. In connection with this significant changes have occurred in the organization of forces and in views concerning their use in battle. But this does not mean that the new historical period wipes away all the past with respect to military practices and military science. V. I. Lenin taught us to make maximum use of the military experience of the past in solving new problems.

We must find those forms of waging the battle and operation which are appropriate where new weapons are used.

The experience of the Great Patriotic War is very helpful in solving these problems. After all, without a thorough study of the past one cannot understand the present and predict the future correctly.

As already noted, the principles of massing forces and means in the main axis, deeply echeloning forces and means, and waging offensive operations with the objective of breaking up the strategic front were used extensively in the offensive operations of the Ground Forces during the Great Patriotic War. These principles continue to be significant today.

The factor of surprise played a substantial role in the war. To achieve surprise forces were secretly regrouped and methods of waging combat that the enemy did not expect were employed in all seasons and all hours of the day.

Today the factor of surprise is even more important. Studying the methods and procedures for achieving surprise will make it possible to use nuclear weapons correctly to achieve the objectives of an operation.

One of the achievements of the art of war of the Ground Forces was solving the problem of organizing and waging offensive operations by groups of fronts. The study of this question is also very useful where new means of armed combat are being used. A typical feature of many offensive operations during the Great Patriotic War was crossing water obstacles on the run.

Under current conditions offensive operations will be waged at great depth and will be highly dynamic. While performing missions the Ground Forces will frequently have to cross all kinds of water obstacles. Therefore, studying the methods of preparing for and carrying out crossings holds great practical significance.

During the Great Patriotic War the achievement of the decisive objectives of the operation depended largely on the actions of armor-tank and mechanized forces.

At the present time when the significance of tank forces in the Ground Forces has grown even greater and combat actions will see extensive

maneuvering, experience in using tanks will find even greater application.

The Great Patriotic War showed that correct organization of fire preparation and support for motorized rifle and tank forces is very significant to successfully break through the tactical zone of enemy defense. Artillery has a large place in this. Experience in waging combat actions where conventional weapons are used has not lost its significance.

It follows from what has been said above that despite the fundamental changes in views concerning methods of waging combat actions which have resulted from the introduction of nuclear weapons, the experience of the Great Patriotic War proves very useful in shaping the military thought of generals and officers and working out uniform views on questions of tactics and operational art.

During the harsh years of the Great Patriotic War the great vital force of the Soviet system, of the economic and military organization of our socialist state, and the enormous organizing and inspirational role of the Leninist Communist Party stood out with special clarity. Party leadership, the party's scientifically substantiated policy, and party organizational and ideological indoctrination work insured the monolithic unity of the Soviet people and the strength of the rear and front, which ultimately brought about the historic victory of the Soviet Union in the Great Patriotic War.

At the present time the Ground Forces, like other branches of the Armed Forces, are carrying out the decisions of the 25th CPSU Congress and constantly improving field training and combat readiness. They are celebrating the 60th anniversary of Great October with high scores in combat and political training.

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Batitskiy on the Air Defense Forces

Moscow VOYENNO-ISTORICHESKIY ZHURNAL in Russian No 10, Oct 77 signed to press
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[Article by Mar SU P. Batitskiy, deputy USSR minister of defense, commander of the National Air Defense Forces, and Hero of the Soviet Union: "The National Air Defense Forces"]

[Text] During the Great Patriotic War the National Air Defense Forces (NADF) performed with honor the missions assigned to them by the Communist Party and Soviet Government. The principal result of their combat activity was, closely cooperating with the other branches of the Armed Forces, their repulsion of thousands of air strikes, protecting major industrial, cultural, and administrative centers, populated points, and communication lines in our country against devastation and annihilation by German fascist aviation. To a significant extent this made possible normal work by industry and transportation and helped maintain the high morale of the population.

Our air defense forces played an enormous role in the defense of Moscow, Leningrad, Odessa, Sevastopol', Stalingrad, and other major industrial and strategic sites. The defense of these important centers occupied a special place in the combat activities of our forces during the war years.

The classical example of air defense of a major center was the defense of Moscow. No large city in the capitalist countries had such powerful air defense. At the start of the war the Headquarters, Supreme High Command reinforced the air defense of the capital and created a special grouping of forces. This made it possible to reliably cover not only Moscow but the entire Moscow-Tula industrial region. The enemy was simply unable to overcome such a strong air defense. A total of up to 9,000 aircraft took part in the attacks, but only 243 (less than 3 percent) broke through to the city. The air defense forces defending Moscow and the targets on the approaches to it wiped out 1,305 aircraft. The plan of the fascist command to flatten our capital by aerial bombing failed.

The NADF carried on equally intensive fighting in the defense of Leningrad. The enemy made 272 attacks (193 of them at night) involving more than 7,700 aircraft. The enemy lost 1,561 planes in aerial battle, through antiaircraft artillery fire, and at the air fields while 312 were crippled. The defense of the city on the Neva proved invincible. The Nazi air force was also unable to knock out the Road of Life across Lake Ladoga.

The increased combat might of the NADF made it possible not only to reliably defend vitally important sites in the USSR but also to reinforce the cover for groups of Soviet forces and their lines of communication during their defensive and offensive operations and to set up effective air defense in the liberated parts of Poland, Bulgaria, Romania, Hungary, Yugoslavia, Czechoslovakia, and Austria. While performing their varied missions the NADF wiped out more than 7,300 enemy planes, including 3,930 destroyed in aerial battle and 238 at airfields, 2,654 shot down by antiaircraft artillery, and 491 hit by antiaircraft machine guns, armored trains, barrage balloons, and other forces and means. In addition, the NADF knocked out more than 1,000 tanks, roughly 1,500 field guns and mortars, and a great deal of other combat equipment and enemy manpower.

The Communist Party and Soviet Government valued the combat actions of our forces greatly: 80,000 soldiers and officers received orders and medals; 92 of them became Heroes of the Soviet Union (and fighter pilot Capt A. T. Karpov received this title twice). Many fighting men were permanently entered on the rolls of units; 29 units and large units received the title Guards and 11 were given honorary names.

During the war the NADF gained rich combat experience, grew quantitatively and qualitatively, and essentially became a new, independent branch of the USSR Armed Forces capable of accomplishing strategic

missions. The first large operational formations (air defense armies and fronts) were formed then. A new branch of the art of war took shape, the operational art of the NADF, related to preparation for and waging combat actions with these formations.

The development of the NADF was based on quantitative and qualitative growth in weapons, combat equipment, and number of personnel and acquisition of combat experience. Before the war the NADF had 182,000 men, but by the end of the war they had increased to 637,000. In 1945 the NADF had the following weaponry: roughly 3,200 fighter planes, 9,800 medium-caliber antiaircraft guns, 8,900 small caliber antiaircraft guns, 8,100 antiaircraft machine guns, 5,400 antiaircraft searchlights, 1,400 barrage balloons, 230 radar detection stations, and 360 radar gun-laying stations; these figures represented an increase of several times compared to the prewar period.

The organizational structure also improved. The Soviet Supreme High Command was searching for organizational forms which would be most appropriate to the changes that had taken place in the nature of military actions and would promote accomplishment of the missions of air defense of important targets in the country and Armed Forces groupings and strategic operations and campaigns.

In the first period of the Great Patriotic War the changes in the organizational structure of the NADF were aimed at increasing centralization of control and consolidating troop formations. This found expression in the institution of an independent NADF command to which all forces and means allocated for air defense of important targets in the country were subordinate and in the formation of the first operational air defense units: the Moscow Air Defense Front, the Leningrad Air Defense Army, and the Baku Air Defense Army.

The Soviet Army's move to strategic offense and the growth in number of fighting personnel and equipment demanded more operational control of the NADF and continuous cooperation with the fronts. To achieve this all NADF forces and means were formed into fronts and armies in June 1943. In May 1945 the NADF had four fronts: the Western, Southwestern, Central, and Transcaucasian (commanded by Col-Gen Arty D. A. Zhuravlev, Col-Gen Arty G. S. Zashikhin, Col-Gen M. S. Gromadin, and Lt-Gen Arty P. Ye. Gudymenko) and three air defense armies that did not belong to fronts: the Transbaykal, Amur, and Maritime armies (commanded by Maj-Gen Arty P. F. Rozhkov, Maj-Gen Arty Ya. K. Polyakov, and Lt-Gen Arty A. V. Gerasimov).

Significant changes took place in the operational-strategic use of the NADF.

Above all the range of missions performed by them broadened. Throughout the war the efforts of the NADF were aimed above all at defending from

air attack the administrative-political centers, industrial and economic regions, and other vitally important state targets on whose preservation our defense capability depended. This was in line with the prewar theory of their operational-strategic purpose.

At the same time, the NADF also had to perform other missions. A decision of the State Committee on Defense assigned them to cover communications lines, groupings of front forces, and operational and strategic reserves of Supreme High Headquarters during operations at depths up to 300-500 kilometers from the front line. The reason for this was that the German fascist command used its aviation primarily to support ground forces and strike targets in our front zone; also, the fronts of the Soviet Army usually did not have adequate air defense forces and means to give reliable simultaneous air cover to installations of front rear services and the main groupings of forces.

The NADF took an active part in the struggle for air supremacy. This mission was performed in close cooperation with the aviation and antiaircraft artillery of the fronts.

They often became engaged in battle against enemy ground forces, in particular tanks. In certain cases NADF aviation was enlisted for actions against ground targets and escorting naval convoys and bombers.

During the Great Patriotic War a new principle of air defense for our state was born. At first this defense centered on sites (targets) and special forces were allocated to defend each site. Zonal defense became possible as a result of the widespread introduction of radar equipment during the war, improvement of the flight performance of fighter aircraft, increase in air defense forces and means, and accumulated experience.

The principle of zonal air defense emerged while protecting Moscow against enemy air strikes, when air defense units were used in a single grouping to cover all the important sites within the Moscow-Tula industrial region. The switch to simultaneous defense of a group of sites located in a vast region made it possible to detect the air enemy at the proper time, put air defense forces in full combat readiness, carry out rapid maneuvers with fighter aviation and regroup antiaircraft artillery in the threatened axes, intensify resistance to the air enemy, and repulse his strikes more successfully. A single grouping of air defense forces and means covered communications lines and troops of fronts simultaneously while part of the forces of the grouping participated directly in the fight against the enemy ground forces.

In the second and third periods of the war air defense in the main axes was clearly zonal. This could be seen, specifically, in the air defense of sites and front lines of communication and troop assemblies in the Kursk axis in the spring and summer of 1943, in the liberation of Belorussia in the summer of 1944, and in other operations.

During the war the basic principle of the use of the NADF, massing air defense forces and means for the defense of vitally important regions and sites in the country in the zone accessible to enemy aviation, was broadened. The principle was applied throughout the war. But when the Soviet Army went over to the strategic offensive and our Air Force gained supremacy in the air, when enemy aviation lost its ability to operate simultaneously along the entire Soviet-German front and was forced to resort to massing its forces in certain decisive axes, some refinements were made in the principle. Under these conditions air defense forces and means were concentrated in the main axes of enemy aviation activity; these coincided with the axes where the decisive events of the war were unfolding.

The principal method of achieving superiority over the air enemy was the strategic maneuver with NADF forces carried out according to the plan of the Headquarters, Supreme High Command. The basic form of strategic maneuver was the maneuver with major air defense forces from the depth of the defense. Regroupings were carried out from regions which had become inaccessible to enemy aviation. Thus, the air defense established in the combat zone where enemy aviation was most active always kept a high level of fighting effectiveness and the air defense system for vitally important sites within the radius of action of enemy aviation was not weakened either.

During the Great Patriotic War the NADF were used in close cooperation with the fronts. The principle of combined actions in a single region was one of the basic principles. During the period of the Soviet Army's strategic offensive when enemy aviation had been forced to use mainly actions against groups of front forces, their lines of communication, and sites within the tactical and operational depth, up to 60-80 percent of the troop air defense units were concentrated in the tactical depth to provide reliable cover for the first-echelon forces of the advancing units. The primary missions of air defense in the operational depth of the fronts were performed by NADF formations who comprised a cover zone along the entire length of the Soviet-German front. Counting troops performing the missions of air defense for cities, up to 75-80 percent of the forces of the NADF operated in the combat and border zones.

The air defense fighter aviation and troops of the fronts essentially constituted the first echelon of the air defense system in the combat zone and the NADF were the second.

The essential feature of cooperation between these two echelons was the distribution of battle missions to cover the main groupings of forces, lines of communication, and civilian sites in the rear of the front, to create a uniform system of air reconnaissance, observation, and warning, to set up a harmonious system of antiaircraft artillery fire, and to coordinate the use of fighter aviation.

The Headquarters, Supreme High Command organized cooperation through the commanders of the branches of the Armed Forces and the commanders of the formations of ground forces and air defense fronts. A special operational group headed by one of the deputy commanders was formed to implement close cooperation with the forces and means of the air defense of the fronts of the Soviet Army and to control its own forces from the air defense front. The headquarters of the Soviet Army fronts usually had operational groups of the staffs of the air defense units cooperating with them. They were given appropriate rights to control their own forces and could carry on cooperation with the fighter aviation and antiaircraft artillery of the fronts. Experience confirmed the wisdom of forming such control groups.

A new form of operational use of the NADF which emerged during the war was the aerial blockade of surrounded enemy groupings. Together with air force units and troop air defense the NADF carried out aerial blockades of surrounded enemy groupings in the Stalingrad, Korsun'-Shevchenkovskiy, Budapest, Breslau, Koenigsberg, and Berlin regions.

The operational art of the NADF during the war years consisted primarily of the theory and practice of preparing for, waging, and supporting actions by air defense formations, both independent and in cooperation with formations of the other branches of the Armed Forces, to thwart enemy air operations, crush large attacking air forces, and protect the civilian sites and troop groupings being defended.

During the repulsion of massed enemy strikes there would be a series of interrelated fights and battles unified by a single plan and identical leadership; this fighting was waged by air defense units and formations and was characterized by decisive objectives, great spatial scope, and the participation of major fighter aviation and antiaircraft artillery forces. In terms of scale, importance of missions, and forms of organization and conduct these actions had already taken on the characteristic features of air defense operations in the first period of the war.

In the second and third periods of the Great Patriotic War the fundamentals of air defense operations were more clearly defined: planning the combat use of forces and means according to a single conception of the air defense armies (Special Moscow Army, Leningrad Army); carrying out broad operational maneuvers with air defense units within a front and between air defense fronts; switching to broad mobile use of air defense fighter aviation units and large units to cover not only sites but also regions and axes; organizing operational and tactical cooperation among air defense fronts and army fronts, fleets, and flotillas with respect to air defense in the combat zones and in coastal regions.

The tactics of the NADF were steadily improved during the Great Patriotic War. The main achievement was working out and introducing methods of insuring coordinated actions by all forces assigned to combat enemy aviation, above all coordinated actions by fighter aviation

and antiaircraft artillery. The experience of the war proved irrefutably that such coordination is possible only with unified control of the combat actions of air defense fighter planes and ground forces. That is why special air defense fighter units subordinate to the command of air defense units were formed during the war. The wisdom of this principle was brilliantly confirmed by the entire course of the war. Unity of control had a beneficial effect on the results of the combat actions of air defense units. They became capable of performing varied missions with high effectiveness. The receipt of new weapons in the air defense forces had an enormous influence on tactics.

Thanks to the heroic labor of the Soviet people and the tireless concern of the Communist Party, air defense fighter aviation received the latest models of aircraft: LA-5, YaK-7, and YaK-9. In the second period of the war units of air defense antiaircraft artillery were entirely resupplied with 85-millimeter antiaircraft cannons, which performed excellently. By the end of 1943 most antiaircraft artillery units were equipped with PUAZO-3 [antiaircraft fire control] units, DYa-type 4-meter stereoscopic range finders, and hundreds of gun-laying radar sets. Antiaircraft machine gun units were fully resupplied with large-caliber (12.7 millimeter) DShK machine guns. In the same year we began to receive Redut-43 and Pegmatit (P-2) detection and guidance radar sets, which were improved models. The first radio-controlled searchlights arrived in antiaircraft searchlight units in late 1943.

During the war years the tactics of air defense fighter aviation saw significant development of methods of guiding fighters to enemy aircraft and controlling aerial battle. Entirely new fields opened up in the tactics of night fighter battle within searchlight fields and outside them and guiding fighter planes by means of radar. The tactics of group aerial battle developed significantly and there were improvements in methods of attacking various types of enemy planes, tactical maneuvering by individual subunits to use auxiliary airfields, and actions from ambush on especially important axes.

New battle formations of fighter planes to wage aerial battle were introduced: the primary fighting unit became the pair, and the intervals and distances between individual planes and pairs in a group were determined more precisely, which made groups more mobile and gave the battle formations greater flexibility; the identification of an assault group and a cover group in the battle formation of air squadrons and regiments became compulsory; methods were incorporated for fighting not only on the horizontal plane but also on the vertical plane, for achieving surprise on the attack, for actions by large forces such as air regiments and divisions in repulsing massed enemy strikes during the daytime, and carrying out maneuvers to build up fighter forces during an aerial battle.

Pilots in air defense fighter aviation mastered one of the most difficult types of battle, night battle, and were able to repulse enemy air attacks quite successfully during the hours of darkness.

The war also introduced many new things in the tactics of antiaircraft artillery. Improved procedures were developed for establishing a powerful air defense on the immediate approaches to sites and the problems of its stability, the survival capability of the groupings, and maneuvering with antiaircraft units were solved. The necessity of defending railroad lines led to the development of antiaircraft armored trains which were highly mobile. Mobile groups armed with small-caliber antiaircraft guns and machine guns were formed to cover trains en route. The characteristics of fighting individual enemy aircraft required the formation of mobile antiaircraft groups and working out their tactics. In connection with massed attacks by enemy aviation against major centers of the country the question of maneuvering with antiaircraft means within the air defense system of a large center rose in very critical form and was resolved (establishment of mobile reinforcement groups, regrouping primary antiaircraft defense weapons to the threatened axes).

The problem of concentrating antiaircraft fire was a major tactical question. In medium-caliber antiaircraft artillery the practical solution was found in the following ways: the intervals between subunits were reduced; 8-gun batteries were formed; fire by battalions based on data from gun-laying radar stations was introduced. In small-caliber antiaircraft artillery and antiaircraft machine gun units the need to concentrate fire led to fire by platoons with consolidated placement of guns and machine guns.

Searchlight units played a significant part in supporting the combat actions of antiaircraft artillery and fighter aviation under nighttime conditions. They created searchlight fields for fighter aviation and circular lighted zones for antiaircraft artillery. During the war new types of target searching were developed: using radar, expanded beams, data from gun-laying stations, and night vision tubes. Antiaircraft searchlight forces were also used to illuminate targets on the field of battle during nighttime antitank defense (the Battle of Moscow, Stalingrad, and the defense of Tula) and when breaking through the enemy's defensive zone (the Berlin operation).

Barrage balloons were a means to bolster the air defense of small, important sites standing by themselves and also sites located within large centers of the country. The balloons prevented small groups of planes and individual aircraft from low-altitude and dive bombing. This reduced the effectiveness of the air attacks.

During the war the forces of the air observation, warning, and communications service received a steady supply of detection radar sets. This qualitatively new equipment made it possible to guide fighter planes to aerial targets. During the war the maneuver of air observation, warning, and communications units for the purpose of deploying the system on liberated territory was especially important. Given the swiftly developing offensive operations, a new type of air observation, warning, and communications unit was formed, the radio battalion and they performed outstandingly in battle.

The development of the tactics of large air defense units took the form of improving methods of comprehensive use of the forces and means of different arms of air defense troops in accordance with their combat capabilities.

Control of the combat actions of the forces varied depending on the situation. Both centralized control and decentralized control were used. But throughout the war there was a tendency toward centralization of control.

Command posts were the primary troop control centers. During an air attack the commander of troops of an air defense front from his command post would directly control the combat actions of the units defending the primary site (region) and would direct the air defense forces of other sites (regions). The direct control of units defending isolated sites was done by the commanders of the air defense units in the local areas.

During the postwar years the improvements made by the aggressive imperialist states in forces and means of air attack and the increase in their striking force have necessitated the natural process of development of the NADF and increase in their combat readiness and fighting effectiveness.

Most of the theoretical and practical points worked out during the fight against German fascist aviation were taken into account during the process of improving the NADF. Of course, this experience was used creatively in conformity with the new conditions that depended on the military-strategic situation and the level of development of air attack and air defense forces.

The foundation of building the NADF during the postwar period, as was also true during the Great Patriotic War, was the decisions of the CPSU Central Committee and Soviet Government based on a careful consideration of many factors and scientific analysis of possible changes in them. The party and government have given the NADF the mission of reliably defending our state against air attack. In performance of this mission we consider the experience of the last war, from which it must be concluded that the threat of a surprise air attack by an aggressor requires that the NADF be maintained in a high state of combat readiness to repulse massed strikes by enemy aviation. Constant combat readiness has become the law of life for the NADF.

The useful experience in organizing centralized control of air defense forces, massed application of forces and means, and close cooperation with other branches continues to be important in the postwar building of this branch of the Armed Forces.

In the first years after the war the principles developed during the war for using large and small units of the arms of troops in battle were fixed in regulations and manuals. Our forces were guided by them

as long as the equipment we had was similar to that used during the last war.

When the NADF adopted antiaircraft guided missiles, supersonic missile-carrying interceptor planes, improved detection and guidance radar sets, automated troop control systems, and new communications equipment the operational art of the NADF received further development. But its first ingredient was the experience acquired during the Great Patriotic War, which had not lost its significance under the new conditions.

The mass heroism and immortal feats of the fighting men of the NADF during the Great Patriotic War are one of the mighty sources of ideological indoctrination of personnel.

Thanks to the tireless concern of the Communist Party the NADF today have been qualitatively renewed. In terms of combat capabilities they are greatly superior to the NADF of the Great Patriotic War period. Our personnel, going forward to meet the 60th anniversary of Great October, are steadily improving combat and political training and reliably defending the air frontiers of our socialist land.

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Kutakhov on the Air Force

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[Article by Chief Mar Avn P. Kutakhov, deputy USSR minister of defense, commander of the Air Force, and hero of the Soviet Union: "The Air Force"]

[Text] The Central Committee of the Communist Party and Soviet Government have done truly titanic work to build a mighty Air Force which is an active and mobile means of armed combat in full accord with the views of Soviet military science.

During the Great Patriotic War our aviation smashed the enemy on land, in the air, and at sea, both in close cooperation with the Ground Forces and Navy and independently. Not a single major offensive or defensive operation was carried out without air force participation. The actions of aviation had a significant influence on the course and outcome of the armed struggle.

During the war the main efforts of Soviet aviation were directed to gaining supremacy in the air, supporting the Ground Forces and Navy, and aerial reconnaissance. Soviet aviation made systematic strikes against targets in the deep enemy rear. To perform these and other missions front and long-range aviation performed more than 3 million combat missions during the Great Patriotic War.

It should be stressed that winning air supremacy was the principal result of the combat actions of our aviation during the Great Patriotic War. Thanks to this the country's rear was freed of enemy aerial bombing and the Armed Forces, above all the Ground Forces, had favorable conditions for successfully waging large offensive operations at a high pace and to great depth.

In supporting the forces of the fronts, Soviet aviation, together with artillery, cleared the path for infantry and tanks, helped them break through the defense rapidly, swiftly pursue the enemy, surround and wipe out enemy groupings, cross water obstacles, capture and hold beachheads, and fight enemy reserves. Front aviation alone used 46.5 percent of all its flight missions for these purposes.

As the war progressed long-range aviation subjected the military-industrial and administrative centers of fascist Germany and its satellites to increasingly powerful air attacks.

The following figures illustrate the scope of actions by Soviet aviation during the war. Whereas more than 1,200 fighting planes took part in the counteroffensive at Moscow, in the Battle of Kursk the number was already up to 5,000, while in the liberation of Belorussia roughly 6,000 planes took part and in the Berlin operation it was 7,500. Strikes against important targets and enemy reserves would be carried out simultaneously by several units with 600-700 aircraft participating.

The number of flight missions also increased. In the counteroffensive at Moscow Soviet aviation made 16,000 flight missions, at Stalingrad roughly 36,000, at Kursk about 90,000 and in the Belorussian operation more than 153,000.

Aerial reconnaissance played a large part. Relying on data from it the front commanders and Headquarters, Supreme High Command were able to analyze situations correctly, determine the enemy intention in time, and on this basis make substantial corrections in operational plans. Suf- fice it to say that during the war an area equal to 6.5 million square kilometers was photographed. This is 1 million kilometers more than the area of the European part of the USSR. More than 11 percent of the total number of flight missions by front aviation were for the purpose of aerial reconnaissance.

Soviet air forces landed subunits, units, and large units of the Soviet Army in the enemy rear. In the war with fascist Germany landings were primarily carried out by parachute, while in the war against imperialist Japan planes landed and unloaded.

During offensive operations aviation was used extensively for air transportation, weapons, ammunition, fuel, food, and other materiel to ground forces, especially tank armies operating in the operational depth of the enemy defense (the Belorussian, Manchurian, and other operations).

The bourgeois falsifiers of the history of World War II will never be able to diminish the role of the Soviet Air Force in crushing the fascist Luftwaffe. During the Great Patriotic War the Soviet Air Force, Naval aviation, and the National Air Defense Forces wiped out 57,000 German planes, our air forces accounting for 48,000 of them. Total enemy losses on the Soviet-German front were 77,000 planes (two-thirds of the total number of planes produced by the German aviation industry during World War II), while losses on the other fronts (France, Italy, and Africa) were 2.5 times less.

Our pilots dropped more than 30 million bombs on the enemy and caused enormous manpower and equipment losses.

The Communist Party and Soviet Government appreciated the combat performance of our aviation. More than 60 percent of the aviation units and large units were awarded orders of the USSR for high combat skills shown in performing missions related to the defeat of the German fascist aggressors, 228 aviation units and subunits of front and long-range aviation were renamed Guards units and 708 received honorary names.

About 200,000 airmen were given state awards for outstanding performance of combat assignments, heroism, and courage; 2,420 of them were awarded the title Hero of the Soviet Union, 65 won this title twice, and two — I. N. Kozhedub and A. I. Pokryshkin — were awarded the Gold Star three times.

The war confirmed a number of principles of Soviet military science and art of war developed during the prewar years. At the same time, it introduced a great deal that was fundamentally new in our military theory and practice.

In the defensive operations of Ground Forces the role and scale of use of aviation proved significantly greater than envisioned by our prewar regulations. Despite theoretical assumptions aviation performed its defensive missions not in army operations but in front and in even strategic defensive operations. These questions were worked out for the first time in military theory and practice.

Another new feature was the aviation counterpreparation to stop or weaken an enemy attack. The counterpreparation was done by concentrated and massed air strikes against advancing enemy groupings, especially tanks and artillery.

During the conduct of offensive operations a new, more progressive form of operational use of aviation was born, the aviation offensive. This was a purposeful combination of all the missions performed by units of front and long-range aviation as well as the aviation of the Navy and National Air Defense Forces, operating in the interests of the attacking forces of fronts. This offensive took in all the best features of prewar theory on the use of the air force and practical experience in combat.

The essential point of such an offensive was continuous support to Ground Forces by massed strikes to the full depth of the offensive operation by forces of the front. This question has been reviewed in detail in your journal, so there is no need to repeat in this article.

During the front offensive operations of the second and third periods of the war the theoretical and practical solutions were worked out for the question of operational use of large aviation units in the interests of tank armies and corps, the mobile groups of the fronts designed to develop the success.

Various methods of fighting for supremacy in the air were developed during the war. They all corresponded to situation conditions and the level of development of aviation equipment. Thus, fighter air divisions with definite combat zones or regions were specially assigned to cover the forces and installations of the rear of a front.

The air operation and battle were forms of action by the Soviet Air Force that also received definition. They complemented one another.

Air operations were planned and conducted differently every single time, taking account of the ground and air situation and the actual ratio of forces and means. Their basic value (assuming concealed preparations) was that they made it possible to inflict a major defeat on the opposing enemy air grouping within a few days and fundamentally changed the ratio of forces in the air to our benefit.

The air battle, a completely new form of operational use of the air force in the struggle for air supremacy, was worked out theoretically and carried through in practice. It was the aggregate of group aerial fights conducted successively or simultaneously by air fighter units. Several hundred aircraft on each side took part in the air battles ('Kuban', 'Kursk', and the Berlin operation).

Methods of striking enemy airfields were also refined. Whereas during the first period of the war such strikes were carried out by small groups of planes, beginning in the second period large groups (up to 100 and more) were used with a significant share of their composition (up to half and more) assigned to neutralize enemy air defense weapons (an example would be the strikes by the 1st Air Army against the Seshcha and Bryansk airfields during the air operation conducted on 8-10 June 1943).

The problem of using aviation in encirclement operations was solved for the first time during the last war (methods were developed for combat actions during the establishment of the internal and exterior fronts, the repulsion of counterstrikes, and the mopping-up of the surrounded forces). As a rule the actions of our aviation were successful and led to a significant weakening or annihilation of the enemy. In the Bobruysk operation aviation in fact played the decisive part in cleaning out the surrounded enemy.

A completely new phenomenon in the operational art of the Soviet Air Force was the successful conduct of air blockades of surrounded groupings at Stalingrad, Korsun'-Shevchenkovskiy, Bobruysk, Vitebsk, Minsk, Yassy, Kishinev, Koenigsberg, Breslau, Berlin, and Prague.

A very successful form of organizational structure for front aviation was found and used successfully. This was the air army, a major operational formation. By this same stroke an end was put to the dispersion of aviation. Joining all front aviation into an air army made it possible to use aviation en masse and exercise centralized control over it on a front scale. This created conditions for closer operational and tactical cooperation with ground forces.

Along with this there were improvements in the structure of large units, units, and subunits. The mixed large units were replaced by homogeneous ones: fighter, ground-attack, and bomber units. The experience of the war shows that improving the organizational structure helped increase the fire power, striking force, and maneuvering capabilities of large and small units, create stable control agencies, and expand potential for waging protracted combat actions.

Early in the war (the autumn of 1941) a new arm of aviation, light night bomber aviation, was formed for actions under complex meteorological conditions and nighttime activity. At first there were individual regiments within army aviation, then after the formation of air armies separate night bomber divisions were created.

Another problem that was successfully resolved during the last war was the creation and use of the aviation reserves of the Headquarters Supreme High Command: aviation corps and separate divisions which included more than 40 percent of the fighting aircraft which operated at the fronts.

The reserves were generally sent to the place where the fate of the campaign or strategic operation was being decided and they were used at the time when conditions were ripe for a turning point in the situation. This was seen with special clarity in the battles of Moscow, Stalingrad, and Kursk and in the Belorussian, Wisla-Oder, East Prussian, Berlin, and other operations.

During the Great Patriotic War the operational art of the Soviet Air Force received new experience in organizing and carrying on operational and tactical cooperation with ground forces in different conditions.

Cooperation took the form of support or (in rare cases) transfer of large air units to operational subordination to combined arms (tank armies or mechanized cavalry groups). The war experience shows that the maneuvering potential of aviation was used most fully in the former case. This made it possible to control the units on a centralized basis and use them en masse.

During the last war procedures were worked out for cooperation between the air armies of front aviation, long-range artillery units, naval aviation, and the fighter aviation and antiaircraft artillery of the National Air Defense Forces in the performance of joint combat missions. There was further development of methods of cooperation among the aviation units of a single air army.

Experience shows that well-organized aviation cooperation with ground forces and other forces and means participating in an operation guarantees victory over the enemy.

The Great Patriotic War demonstrated that one of the decisive conditions for successfully waging air force combat actions was precise and centralized control.

During the war new, more expedient forms of direction and control of aviation in the strategic, operational, and tactical elements were found. On the strategic level the air force was directed by the Headquarters, Supreme High Command. Its orders and decisions were directly carried out by the General Staff, the command of the air force of the Soviet Army, and the long-range artillery command.

In the first months of the war main air force commands were formed for the Northwest, West, and Southwest axes to control and coordinate the efforts of the large aviation units of several fronts and to organize cooperation among them. The formation of such commands was an entirely new phenomenon in the art of war.

Another form of strategic direction of air forces that was used extensively was the visit to the field by aviation representatives from the Headquarters, Supreme High Command (the air force commander and his deputies). This was required by the need to make control more operational and to insure coordination in the actions of the aviation of groups of fronts performing a common strategic mission.

During the campaign to smash the Kwantoon Army an intermediate control element was formed: the main command of Far East Air Forces. Unlike the main air force commands of the axes formed in 1941 the main command of Far East Air Forces had substantial independence in deciding questions of reinforcing air armies with aviation units of the Supreme High Command Reserve, providing them with weapons and materiel, staffing them, and the like.

Control of aviation on the operational level was steadily refined. In the first year of the war the combat actions of aviation in operations were directed by the troop commanders of the fronts and armies through appropriate air force commanders. With the formation of air armies in 1942 direction was carried on by the troop commander of the front through the commander of the air army who was at the same time deputy troop commander and a member of the front military council. This was also a new step in directing aviation and made it possible to exercise

centralized control of aviation on a front scale and use large and small aviation units en masse according to their combat capabilities, the nature of enemy actions, and the operational situation.

Control of the combat actions of an air army was insured by establishing a system of control posts with the necessary communications equipment.

Thus, while two control posts, the command and rear posts, were formed in air armies (front air forces) in operations of the first period of the war, during the second and third periods auxiliary control posts were also set up and the air army commander or his deputy with an operational group of 6-10 officers was usually located there. The auxiliary control post was deployed in the immediate vicinity of the front commander's command post or the observation post of one of the combined arms (tank) armies.

In operations where a large number of aircraft were operating simultaneously in a limited region (the Wisla-Oder, L'vov-Sandomierz, East Prussian, Berlin, and other operations) traffic control (check-) points were set up to specify the missions of units and subunits traveling into the region of combat actions.

There were also substantial changes in the organization of control posts in air divisions and corps. Thus, during the first period of the war the commanders of large units ordinarily directed the combat actions of subordinate units from command posts located near the airfield; in the second period the commanders of fighter and ground-attack units set their control posts on the field of battle, near the command post of the cooperating combined arms (tank) army. In bomber air divisions such command posts were set up only in cases where the bombers were being used for direct support of ground forces.

A new feature in aviation control was assigning operational groups, aviation representatives with communications equipment, and guidance officers to the command posts of combined arms (tank) formations. It should be emphasized that they played an important part in controlling aviation on the field of battle and completely justified themselves. Thus, combining air army control posts with the command posts, observation posts, and auxiliary control posts of combined arms chiefs and bringing them closer to the front line promoted better cooperation with ground forces and better direction of large and small aviation units.

The greatest changes in tactics occurred at the end of the first period of the war and beginning of the second period. During the war fighter aviation units received the new YaK-76, YaK-3, YaK-9, LA-5, and LA-7 aircraft. When providing cover for troops these aircraft began to be echeloned by altitude in the patrol zone and divided into groups: the assault group and the direct cover group, and the zones themselves extended into enemy territory, making it possible to attack enemy bombers far from the location of friendly forces. When the Air Force

began to receive radar sets (September 1943) a more economical method of action became widespread: intercepting enemy planes from a status of "airfield duty."

By the end of the first period of the war Soviet fighter planes were making broader use of "free hunting" and had learned to wage aerial battle on the vertical plane. All this made it possible to provide more reliable cover for ground forces and increase the effectiveness of air actions in the battle for air supremacy.

A new procedure was used in the operations of 1943-45 when fighter planes were supporting the combat actions of other arms of aviation: clearing the air space in the region of the objects of the attack. In the final period of the war blockading airfields where enemy fighters were stationed was extensively used.

The tactics of ground-attack aviation were worked out during the war. These tactics developed in the direction of mastering the most efficient ways for ground-attack planes to wipe out targets on the field of battle in close tactical cooperation with units of the ground forces.

In the first period of the war ground-attack planes performed their combat missions in small groups using the method of echeloned actions. When the number of IL-2 planes increased in the second and third period of the war, concentrated strikes on the scale of the regiment, division, and sometimes even corps became more frequent. In difficult weather conditions ground-attack pilots would use a new method for them, the "free hunt."

With their powerful cannons ground-attack planes waged aerial battle not only against enemy bombers and transports but also fighter planes and in certain cases even provided cover for ground forces. This was a completely new phenomenon in the combat use of ground-attack aviation.

In addition, ground attack planes were used as short-range bombers during daylight and sometimes at night. In connection with such assignments they carried out combat actions not only in tree-top flight but also at low and medium altitudes. The "circle of planes" battle formation was used extensively for protracted action against enemy troops and to defend against attacks by enemy fighters in the target region.

The tactics of front bomber aviation also changed as combat experience was accumulated, new types of aircraft were adopted, and the resistance of enemy air defense weapons increased. At the start of the war concentrated strikes by groups as large as an air regiment and echeloned actions were the primary forms.

When front bomber aviation was reequipped with new PYe-2 and TU-2 aircraft and the air fleet grew in size concentrated strikes began to

be delivered by large forces, up to an air corps inclusively. This was something new in the tactics of bomber aviation and resulted in more effective strikes. Bombers were also used for "free hunting" and blockading enemy air fields. In addition to bombing from horizontal flight bombing was done extensively from dives at angles up to 50-60 degrees, which greatly increased the effectiveness of the strikes and the accuracy in hitting the target.

During the war groups of bombers were for the first time actually re-directed to other targets by the air unit commander by radio from the command post of the combined army commander or through the radio station of the traffic control post.

Thus, the tactics of fighter, ground-attack, and bomber aviation proved flexible and effective and surpassed the tactics of the German air forces.

During the war years methods of aerial reconnaissance were also refined and developed. Subunits and units of all arms of aviation began to be enlisted extensively as non-attached reconnaissance forces to perform aerial reconnaissance missions. Another new development was the use of large-scale vertical and oblique photography 15-20 and more kilometers deep into enemy territory, which began in 1943, and aerial filming of the enemy defense, which was begun in 1944 (the Wisla-Oder and Berlin operations).

A series of outstanding military and aviation leaders developed during the Great Patriotic War to skillfully direct the combat actions of the Air Force. Among them were Chief Mar Avn A. A. Novikov and Mar Avn P. F. Zhigarev, commanders of the Air Force of the Soviet Army, commander of long-range aviation Chief Mar Avn A. Ye. Golovanov, marshals of aviation G. A. Vorozheykin, N. S. Skripko, F. Ya. Falaleyev, and S. A. Khudyakov, their deputies, Col-Gen Avn A. V. Nikitin, and air army commanders Chief Mar Avn K. A. Vershinin, marshals of aviation S. A. Krasovskiy, S. I. Rudenko, and V. A. Sudets, and generals S. K. Goryunov, M. M. Gromov, V. N. Zhdanov, I. P. Zhuravlev, N. F. Naumenko, N. F. Papivin, F. P. Polynin, S. D. Rybal'chenko, I. M. Sokolov, and T. T. Khryukin.

The tireless concern of the Communist Party and Soviet Government for the development and strengthening of the Air Force was a decisive condition in our successful combat actions.

Despite the fact that fundamental changes took place in the means of armed combat, development of the Air Force, and views concerning the use of aviation in the battle and operation owing to the scientific-technical revolution, a great deal of the experience of the Great Patriotic War has not lost its timeliness and can be used in practical troop training and indoctrination.

The experience of the past war is important above all for determining the place and role of the Air Force in modern warfare. The war

demonstrated convincingly that as the combat capabilities of the Air Force grow its role also increases steadily, especially in conditions of combat using conventional weapons. No modern operation is conceivable without the active participation of the Air Force.

Given the increased role of aviation in war and operations and the steady improvement of means of attack by our probable enemies, the importance of the combat readiness and survival capability of the Air Force not only perseveres but is greatly increased. Fascist Germany's sudden attack on our country at the start of the Great Patriotic War illustrates the need to keep aviation at a high level of combat readiness to rout an air enemy in the air and on the ground.

The war experience shows that winning supremacy in the air is a necessary and essential condition for achieving success in the operation and the war. When it has supremacy, aviation will be able to concentrate its main forces to support ground and naval forces.

It is our view that today, as in the last war, air supremacy is achieved primarily by defeating enemy air groupings, and this requires the efforts of all the branches of the Armed Forces. Nevertheless, the Air Force will have the primary role.

The experience of the Great Patriotic War confirms the importance of reliably neutralizing and wiping out enemy air defense weapons. If this is not done it will be impossible to reach the primary sites of aviation groupings and win air supremacy.

The Great Patriotic War enriched the Soviet art of war with priceless experience in organizing control of aviation combat actions on the strategic, operational, and tactical scales. This refers above all to the basic principles, among which the principle of centralization of control continues to be one of the main ones because it is most appropriate to the current conditions of armed battle.

Another feature of the wartime experience that continues to be important today is the organization of aviation cooperation with other branches of the Armed Forces and organizing cooperation within the Air Force itself (in all elements from tactical to strategic). Even today this is helpful in answering many questions related to this timely problem.

The experience of the Great Patriotic War is an inexhaustible source for the moral-political, psychological, and combat conditioning of our current generation of airmen.

Thanks to the leadership of the Communist Party the Air Force, like the other branches of the Armed Forces, is equipped with modern weapons and stands in constant combat readiness to repulse the strike of an aggressor.

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Gorshkov on the Navy

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[Article by Fleet Adm SU S. Gorshkov, deputy USSR minister of defense, commander of the Soviet Navy, and Hero of the Soviet Union: "The Navy"]

[Text] The Great Patriotic War was a most severe test of all the Soviet Armed Forces as a whole and for the Navy in particular. Our combat equipment and the political-moral condition, steadfastness, and training of naval personnel, in other words, those things that constitute the strength of our navy, were subjected to a harsh trial under the most difficult conditions. The men of our navy passed this test with honor.

In the fighting at sea and on land they showed persuasively that our fleet was adequate to meet the requirements of the war in all respects.

Created by the Communist Party and the talent and tireless labor of the Soviet people, the USSR Navy performed its duty to the homeland with honor and showed itself a worthy heir of the remarkable revolutionary and combat traditions of many generations of seamen.

From the first day of the war until the last the main forces of our navy were engaged in the performance of two sets of combat missions.

The first and primary group of missions involved rendering assistance to the troops of the valiant Soviet Army, which had taken on the primary burden of fighting superior enemy forces along the vast Soviet-German front; the second was the fight against the enemy navy.

The main forces of the Navy were enlisted to perform the first group of missions; this meant most of the surface ships, naval aviation, and all the marines and shore artillery.

The joint actions with ground forces by the Northern, Red Banner Baltic, Black Sea, and Pacific Ocean fleets and the Danube, Pinsk, Volga, Caspian, Azov, Ladoga, Onega, White Sea, and Amur flotillas involved the broad range of forms and methods of armed combat available in our naval science at that time. The primary features were powerful strikes by naval aviation, surface vessels, and long-range shore artillery against enemy installations and troops, counterstrikes in the enemy rear and flank by swift landings of operational and tactical landing parties, and powerful aviation and artillery strikes against groupings of enemy forces in coastal axes. They were highly effective because of the determination, persistence, creative activism, and initiative of commanders at all levels and the purposefulness of actions by personnel.

The stubborn defense of naval bases, administrative-political centers, ports and islands, and major operational-strategic maritime bases of

operations was very important. The heroic defenders of Liyepaya, Tallin, Khanko, Leningrad, Stalingrad, Kiev, Odessa, Sevastopol', Kerch', Novorossiysk, the Polar region, and the Caucasus, who received necessary support from all the forces of the fleets and flotillas, covered their battle colors with unfading glory.

The Navy sent its sons to ground fronts as well. A half million seamen, most of them volunteers, fought on land. To the fronts they brought their combat traditions, naval training, and military skill. They were staunch and steadfast on the defense, swift and unstoppable on the attack, fearless in battle, absolutely faithful to their military duty, and devoted to our native land. On the approaches to Moscow, by the walls of Stalingrad, on the Rybachiy Peninsula, in the steppes of the Ukraine, and on the shores of the Black and Azov seas and numerous rivers and lakes — everywhere they were given important assignments and everywhere our seamen repaid this trust, invariably earning high praise from army and front commanders.

The heroic actions of naval personnel in support of the Soviet Army on land were merged in a single stream with the intensive activity which our fleets waged in their traditional sphere, at sea, performing an intricate set of combat missions in opposition to the enemy navy. The critical struggle, filled with emotional events and never dying down, against enemy surface forces and submarines, repulsing massed strikes by aviation, daring attacks by submarine and launch sailors, and bold raids by surface ships into enemy ports and bases constituted the second, but equally important, group of missions performed by the Navy. They too demanded great exertion of emotional and physical strength. Disruption of enemy sea lanes and defense of our own lanes, stopping enemy plans to strike groupings of our ground forces from the sea, and blockading enemy armies pressed against the coast — these are just a few of the missions performed by the Navy where main naval forces were kept very busy by various actions in support of ground forces.

All of these actions were precisely coordinated with the efforts of ground units and had the most immediate and beneficial effect on the situation on land. Hundreds of enemy transports and fighting ships were sunk at sea and in base and with them tens of thousands of Nazis and their tanks, aircraft, guns and mortars and hundreds of thousands of tons of fuel, ammunition, food, and clothing went to the bottom. At the same time our fleet insured timely delivery of essential replacements and power, equipment, and weapons to our forces by water. Millions of tons of cargo and many military formations to the army level inclusively carried out swift maneuvers between different operational axes with the help of the Navy.

The persistent, systematic, and aggressive combat actions of the fleets in the naval theaters during the war were a strategic factor which the German fascist command was forced to deal with. This is illustrated by the fact that even though the enemy often had a significant superiority in naval forces never once during the entire war did he dare

in the most critical situations of the struggle on land to attempt to support ground forces by strikes from the sea.

At the same time, the forces of the Soviet Army boldly used opportunities to concentrate efforts in the decisive axes, assigning naval units to defend their seaward flanks and rear areas located in broad coastal zones.

The German fascist command carried out a number of operations to wipe out our ships. But they were stopped by the combined actions of the Navy and ground forces. These operations required significant manpower which the Nazi command could not use in the decisive sectors of the Soviet-German front. The vigorous combat activity of our fleets in this case was one of the important factors which forced the enemy to disperse his efforts, something which our ground command took skillful advantage of.

Our country thought highly of the contribution of Soviet seamen to the common cause of Soviet victory over Hitler's Germany. The name Guards was awarded to 78 of the most distinguished naval ships, units, and large units and 238 received orders. All of our fleets, the Northern Red Banner Baltic, Black Sea, and Pacific Ocean, were awarded the Order of the Red Banner. During the war years more than 350,000 seamen, petty officers, officers, admirals, and generals were given battle orders and medals for military valor, courage, steadfastness, and heroism and 580 seamen received the lofty title Hero of the Soviet Union. B. F. Safonov, A. O. Shabalin, V. N. Leonov, V. I. Rakov, N. G. Stepanyan, A. Ye. Mazurenko, and N. V. Chelnokov were awarded this title two times each.

The Soviet Navy overall was well-prepared in all respects when it entered the war. Not only did it have sufficiently modern fighting ships and weapons for that time, but also it possessed the essential arsenal of procedures and methods for using them in battle, tested in various exercises and maneuvers, as well as a polished system of personnel training and indoctrination.

Extensive scientific research which summarized the combat experience of the fleets during World War I and the Civil War with due regard for subsequent scientific advances provided the theoretical basis for the development of naval art and this basis was used in publication of the new naval regulations (BU MS 37). Our navy was able to put the initial points of the theory of the deep operation, which was first developed in our country, into practice quickly and to compose the manual on the operational-strategic use of naval forces in warfare. These important documents which regulated all possible combat activities by the navy defined the development of our naval art in the Great Patriotic War. Many of their principles were confirmed in battle, while the war forced substantial corrections in some of them, and others required fundamentally new decisions relative to the conditions of warfare that came about, some of which could not have been foreseen.

The results of this enormous work were seen on the very first day of the war when the enemy attempted to wipe out or blockade naval forces in their bases by surprise mine-laying strikes. The extremely sound, well-practiced, and thoroughly tested system of combat readiness, which had been implemented at the right time, enabled all our fleets to meet the attack fully armed and successfully repulse the enemy strikes without losing a single fighting ship. This created important prerequisites for the performance of combat missions arising from the situation in the different naval theaters.

Further refinement of the system of combat readiness during the war in view of combat experience became a generally accepted part of the everyday work of all command levels; it became a leading factor in their work and one of the fundamental principles of Soviet naval art.

Combat experience, which was the chief criterion for evaluating the achievements of naval art, was at the same time the primary moving force in its development. Throughout the war the needs of combat demanded that urgent solutions be found to fundamentally new questions of the strategic use of naval forces to achieve decisive effects on the enemy and influence the overall course of the armed struggle.

On this level Soviet naval art was enriched by the development and implementation of methods of striking strategic targets in enemy territory and in naval theaters. The system of strikes by forces of the Black Sea Fleet inflicted together with Air Force units against the petroleum works at Ploesti and Constanta, which were an important source of supply for the German fascist armies, definitely can be classed as such strikes. So too can the strikes against strategic sea lanes, the vitally important arteries of German heavy industry in the Baltic and Barents seas.

The strikes by Baltic Fleet aviation against military-industrial sites in Berlin in 1941 held great military-political significance. They illustrated the new potential of our navy to use its forces effectively against strongly defended targets deep in enemy territory and affect the moral-psychological condition of enemy forces and population.

During the first period of the war practical solutions were found to the questions of defending naval bases, stabilizing the strategic flanks of ground forces in coastal areas, supporting strategic regroupings of combined arms formations, and insuring the continuous functioning of sea lanes linking units isolated on land with the rear areas of the country.

A major achievement in the area of the strategy of naval warfare was the development and practical implementation of a system of combat activities by the fleets which participated in the strategic operations of 1944-45. Among them the actions of the Red Banner Baltic and Black Sea fleets to blockade major groupings of enemy forces pressed against the coast and prevent their evacuation by sea stood out for

their effectiveness, scope, and the novelty of the methods used by various naval forces in their cooperation with one another and with ground forces.

Another new feature in the area of naval warfare was the development and practical implementation throughout the war of various methods of supporting strategic shipping; at the start of the war this was done primarily by the Northern Fleet, but later the Red Banner Baltic and Black Sea fleets were also involved. We should note here the organization of cooperation between the Northern Fleet and the navies of our former allies and the continuation of this cooperation throughout the war.

During the Great Patriotic War the trend toward centralized direction of naval forces emerged and developed. Coordinating naval efforts with those of ground forces for the purpose of mutual support of actions in adjacent operational axes was a qualitatively new phenomenon in naval art and this experience provided the theoretical basis for continued development of the theory of strategic use of naval forces in modern warfare.

We should emphasize that Navy cooperation with ground forces played a leading part throughout the war. It was especially difficult (on both defense and offense) to organize cooperation in the landing of marine landing parties. In this respect Soviet naval art proved unsurpassed by any of the navies of the other combatant states who only landed marines during offensives by ground forces, with large numbers of landing vessels and an extended period of time to prepare forces, as well as, usually, great (many-fold) superiority over the enemy. Our Navy did not make landing operations dependent on these conditions but was firmly guided above all by operational necessity arising from the situation on the ground front and the missions being performed by the particular fleet during the particular period. In those cases where a counterstrike from the sea against the rear or flank of an advancing enemy could decisively change the situation in our favor, marine landings were one of the most decisive means of affecting the enemy and thwarting his conceptions and plans; at the same time they were a highly effective form of assistance to ground forces in the most critical situations. It is enough to recall, as an example, the result of the actions of the landing party at Grigor'yevka (near Odessa), which altered the status of the defensive front on land. Another example was the Kerch'-Feodosiya landing operation which not only eased the position of the defenders of Sevastopol' but also opened a new front. The enemy could feel its repercussions on the southern arm of the Soviet-German front and was forced to weaken the grouping of forces advancing along the north coast of the Sea of Azov.

Landing operations were carried out following the principles of surprise and swiftness; they were characterized by originality of plans and unquestioned operational expediency.

Although a significant number of the landings were carried out in the face of enemy numerical superiority, a large majority of them accomplished their missions. The situation which took shape in the first period of the war and during the swift advance of our forces in coastal axes made it necessary to land many tactical landing parties after just a few days of preparation and 61 landings had less than 24 hours of preparation. If we consider that for each landing operation it was necessary to enlist various fighting ships which required appropriate preparations, often involving reequipping and practicing actions, we can plainly see the titanic work done by commanders and officers during the war, the exceptionally high level of organization, the sophistication of operational and tactical skill at all command levels in the fleets, and their ability to organize and carry out precise cooperation with ground forces.

A variation of joint actions by naval and ground forces was navy help for ground forces on defense and in the attack. This help took the form of performance of various missions in coastal and river axes by naval forces.

The enemy felt the might of the fire of ship and shore artillery combined with the unexpectedness of the fire strikes at Tallin, Leningrad, Odessa, Sevastopol', and Novorossiysk as well as in the Polar region and in many coastal sectors. The skill of naval gunners and the effectiveness of their strikes against the enemy are illustrated by the fact that the configuration of the front line in certain coastal axes was defined by the boundary of effective fire of long-range guns. Naval artillery constituted the foundation of the defense of the hero-cities. Ninety-five percent of all naval artillery fire during the war was carried out in support of ground forces. In the first period of the war naval artillery compensated for the low density of field artillery and greatly increased the ability of ground forces to maneuver with fire by axes and through the depth of the defense. Naval artillery was the most important means of countering artillery batteries during the defense of Khanko, Leningrad, Sevastopol', and the Polar region and acted as a mighty ram clearing the way for the advance of ground forces.

The mighty strikes of naval forces against coastal targets were united with those enormous efforts undertaken to insure military shipping by sea, a vitally important form of supply for the ground forces defending coastal operational-strategic bases of operations cut off from their own rear areas.

The various combat actions by the fleets acquired the characteristics of interrelated and interdependent elements of a previously unknown form of operational use of naval forces: the naval operation to assist ground forces. Its merits showed themselves fully during the strategic offensive of the Soviet Armed Forces. The first such operation was carried out by the Black Sea Fleet in the fighting to liberate the Crimea; the most important part of this operation was actions

on sea lanes to prevent the evacuation of enemy forces by sea. The naval operation to assist ground forces received further development in the Baltic and the North. During such an operation all naval forces and means were used in combination. We consider this type of operation one of the major achievements of our naval art during the war years.

Naval art also developed intensively in the field of tactics. There were profound changes. Well-developed methods of performing combat missions by the combined efforts of different naval forces in close cooperation with other arms of troops, for example naval aviation with units of long-range and front aviation and units of the National Air Defense Forces, also appeared in the arsenal of tactical means.

Throughout the war, especially in the third period, methods of using aviation and submarines together were developed, marking a new step forward in tactics.

A major achievement was methods of massed actions by bomber, mine-torpedo, and ground-attack aviation against ships and land targets and the actions of lone torpedo planes which carried out "free cruising" at sea.

The tactical methods of independent use of submarines in various conditions were distinguished by novelty and variety. Among them were submarine penetrations into strongly defended enemy bases and wiping out ships there, employing the "hanging curtain" method in the North, overcoming dense antisub lines in the Gulf of Finland, and extended, fully autonomous cruises to remote regions with comprehensive use of torpedoes, mines, and even guns.

The tactics of surface ships were supplemented with methods of effective fire support for ground forces and marine landing parties, swift torpedo attacks and repelling massed air attacks, searching for and destroying submarines, concealed mine laying and minesweeping in the face of enemy action, escorting submarines and convoys, supporting the maneuvering of ground forces by sea, and striking enemy ships in base.

This by no means completes the list of achievements in the development of methods and procedures of using our naval forces. These merely illustrate the indisputable fact that the intensive, multifaceted, small and large combat actions of our fleet during the Great Patriotic War served as an inexhaustible source of creative development of all branches of naval art.

Throughout the war with fascist Germany the Pacific Ocean Fleet served as an invincible barrier against the aggressive designs of the Japanese militarists. At the same time it trained reserves for the active fleets and fronts. In August 1945 the Pacific Ocean Fleet and the Red Banner Amur Flotilla played a very important part in the rapid

capture of South Sakhalin, the Kurile Islands, and the ports of Korea. The swift landing operations of our seamen cut the Japanese Kwantoon Army's ties with the mother country and finished its complete encirclement.

In both defensive battles and on the offensive the naval flotillas operating on internal seas, major rivers, and lakes rendered exceptionally valuable assistance to our forces. Among these were the Azov, White Sea, Ladoga, Onega, Volga, Danube, Dnepr, Caspian, and Red Banner Amur flotillas.

While paying a tribute of profound respect to the contributions of our seamen, the majesty of their wartime feat, and the unconditional bravery and great military skills shown during the Great Patriotic War, our navy especially valued that rich combat experience which our fleets acquired from the fight against a strong naval enemy at sea and in the most diverse joint actions with land forces. This multifaceted experience, received at such a high price and under such difficult conditions, in combat actions on land, at sea, under the water, and in the air, actions that were large in spatial scope and scale and unprecedented in ferocity and persistence, is the property not just of the Navy but of the whole Armed Forces. Its influence is seen today and will be reflected long into the future in combat training and building the Armed Forces as a whole and the Navy in particular. All the post-war practices of the Navy have been in large part coordinated with it; this means preparing the Navy to defend our country and using it to perform definite missions in peacetime. This experience continues to influence the development of the theory of naval art, acting as the chief criterion of its objectivity. The lessons and conclusions drawn from the experience of the last war have become especially timely for the Navy in connection with the military-technical revolution.

There have been important changes in the international arena, resulting primarily from the deployment of weapons and preparations for a new world war by the imperialist powers led by the United States. They devote special attention to building up the strategic capabilities of their navies.

Showing constant concern for bolstering the defense capability of our country the Communist Party and Soviet Government could not fail to take account of the rapidly increasing threat to the Soviet Union from the sea. Only a powerful ocean-going navy could repulse and neutralize it and the decision was made to build such a navy using the latest achievements of scientific-technical progress. This historic challenge has been met and our country now has a modern navy which defends its sea frontiers reliably and confidently secures the state interests of the Soviet Union at sea.

The creation of an ocean-going navy which is expected to perform qualitatively new missions demanded further development of Soviet naval art based on wartime combat experience.

For example, the wartime experience with organizing uniform, strictly centralized direction of the action of all branches of the Armed Forces to achieve a single objective, defeating German fascism, a strong and treacherous enemy of progressive humanity, holds great practical value today. A key principle of Soviet art of war and naval art has been and remains skillful use of experience with cooperation among the branches of the armed forces, the arms of troops, and the arms of naval forces, which was thoroughly tested and developed during the Great Patriotic War. Despite the fact that our ships today mainly cruise the vast regions of the World Ocean, we continue to give the necessary attention to improving cooperation with the Ground Forces.

Our Navy has imbibed the centuries of experience of many generations of seamen and the glorious revolutionary and combat traditions that constitute a precious heritage which must not only be preserved but also multiplied by our military labor. The best traditions have become rules of life for our admirals, officers, warrant officers [michman], petty officers, and seamen, the norm of behavior for them during lengthy, difficult ocean cruises, in everyday naval life.

Our seamen are multiplying these traditions, giving them new vital force, and adding new, modern content to them by exemplary performance of combat training missions during these cruises, insuring precise and uninterrupted functioning of all ship systems and mechanisms, maintaining constant combat readiness, showing determination to carry out the orders of the homeland without delay, and steadily improving combat skill and sea training.

Creative use of the rich combat experience of the last war together with experience in postwar development of the navy and navy combat training multiply the effectiveness of the Leninist principle of the unity of theory and practice and are enormously important for the present-day military activities of commanders of all ranks and levels. This experience enables our military cadres to structure all their practical activities on a strictly scientific basis and use their knowledge effectively in the process of training and indoctrinating personnel, during operational and combat preparations, and in the performance of any combat training and practical missions.

Following the decisions of the 25th Congress of our party and the CPSU Central Committee decree entitled "The 60th Anniversary of the Great October Socialist Revolution," the admirals, generals, officers, warrant officers [michman and praporshchik], petty officers, and seamen of the ocean-going, nuclear-missile carrying Soviet Navy bolster their combat readiness every day, persistently improve their mastery of weapons and equipment, and raise the level of organization and discipline. They are celebrating the glorious anniversary of our native land, the 60th anniversary of Great October, with high marks in combat and political training.

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Kurkotkin on the Rear Services

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[Article by Army Gen S. Kurkotkin, deputy minister of defense and chief of Rear Services of the USSR Armed Forces: "The Rear Services of the USSR Armed Forces"]

[Text] During the Great Patriotic War the Armed Forces Rear Services performed an enormous amount of work in material, transportation, technical, medical, air rescue, and other types of support to the forces of the army and navy.

In the area of material support the most important thing was continuously meeting the ever-growing needs of the active fronts and fleets for weapons, combat and transportation equipment, ammunition, fuel, food, and so on.

During the war rear agencies together with other services received from industry and delivered to the armed forces more than 108,000 combat aircraft, 95,000 tanks and self-propelled guns, about 445,700 mortars and field guns of 76 caliber and higher, 954,500 machine guns, 12 million rifles and carbines, 6.1 million automatic weapons, 427 million shells and mines, roughly 21.4 billion cartridges, more than 168.3 million grenades, 7,500 naval gun systems, up to 152 millimeters inclusively, 40,000 mines and torpedoes, and 163,100 depth charges.

The war demanded an enormous amount of gasoline, diesel fuel, oil, and grease. In the period 1941-45 army and navy forces used more than 16 million tons of various grades of fuel. The Rear Services took care of receiving the fuel from the national economy, storing it, delivering it to the units and ships on time, and refueling the equipment; in addition we took steps to see that it was used economically.

Despite the difficulties caused by the enemy's temporary occupation of part of USSR territory, throughout the war the Soviet Armed Forces received an uninterrupted supply of food in the necessary amount and assortment. Roughly 40 million tons of food and fodder was delivered to the Soviet Army and Navy. The Armed Forces Rear Services did not limit themselves to centralized food deliveries here. We carried out major procurements of food and fodder products from local sources. More than 10 million tons of potatoes and vegetables alone were procured. Auxiliary military farms for planned unit supply during the war years produced more than 1.8 million tons of potatoes and vegetables (about 14 percent of the total amount used), roughly 14,000 tons of meat, 22,000 tons of fish, 55,000 tons of milk, and many other food products.

The Armed Forces Rear Services did a great deal of work to provide troops with clothing and personal goods. Soviet fighting men received

the necessary clothing when they needed it. They were well dressed and had good footwear. During the war more than 38 million heavy overcoats, 73 million blouses, 70 million pairs of cotton trousers and roughly 20 million pairs of quilted trousers, 20 million quilted undershirts, 64 million pairs of leather footwear, more than 11 million pairs of felt boots, and a great deal of other gear were used.

During the Great Patriotic War transportation performed an enormous amount of work to support the regrouping of forces, deliver replacements to the fronts and fleets, deliver materiel, and carry out evacuations. For example, rail transportation dispatched an average of 284 trains carrying troops and military freight for each day of combat action and the total volume of military shipping by rail during the war was more than 19 million cars, the equivalent of almost 300 million tons of freight. Rail transportation delivered more than 6.5 million cars of various kinds of freight and about 3.5 million cars of troops and replacements to the fronts and fleets according to the plans of central agencies.

The railroad troops and special formations of the People's Commissariat of Railroads did considerable work on building and restoring railroads. In all during the war 120,000 kilometers of railroad was restored and relaid; this figure is 13 percent more than the total operating length of the USSR rail network in 1940. More than 242,000 meters of large and medium-sized bridges were built and restored as were more than 23,200 meters of tunnels, 13,000 small bridges and pipes, about 8,000 stations and sidings, and many other objects. The average pace of restoration of railroad lines at the end of the war reached 10-12 kilometers and track was relaid at 25-30 kilometers a day. Railroad military food posts serving troops and replacements traveling by rail provided food to 305,000 troop trains, serving 250 million hot meals to personnel. Water transport shipped more than 4.7 million persons, 205,000 horses, 10,800 guns, more than 5,200 tanks, roughly 59,000 motor vehicles and tractors, 103,000 wagons, and 21.5 million tons of various kinds of military freight as well as evacuating hundreds of thousands of sick and wounded persons.

The motor vehicle troops conveyed personnel, delivered materiel, and performed all kinds of evacuations. The total volume of shipping performed by motor vehicle transportation during the operations of the last war was 625,200,000 tons (39 million railroad cars).

The road troops did a great deal of work to support motor vehicle and draft animal shipping. They built, repaired, and restored more than 100,000 kilometers of roads (roughly 70 percent of the total length of all USSR motor vehicle roads in 1940) and 1,300 kilometers of bridges, maintained roughly 350,000 kilometers of the road network, and disarmed more than 117,700 mines. Millions of servicemen traveling with units, transportation columns, and individual vehicles were fed along the military roads; 3.1 million persons passed through the rest and warm-up points, more than 1.1 million received medical care, roughly

800,000 motor vehicles were serviced at mechanical aid points, and up to 2 million vehicles were refueled.

Air transportation was used to drop airborne landing parties and deliver especially urgent freight to the fronts and fleets and to blockaded cities, for evacuation of wounded and sick persons, and to deliver materiel to landing parties, partisans, and mobile groups of forces whose surface transportation ties had been cut or made difficult. During the war military air transportation units alone carried 1,539,000 persons and roughly 140,000 tons of military goods.

The personnel of the Rear Services together with the other services did a great deal to rapidly restore damaged artillery, engineer, chemical, and other kinds of weapons and armor-tank, motor vehicle transportation, aviation, ship, and other combat and special equipment. The repair agencies of the Soviet Army and Navy repaired tens of millions of units of weapons and equipment. For example, 304,129 units of artillery systems, 20,364,900 rifles and mortars, and 25,998 rocket artillery combat vehicles were restored. More than 622,000 tanks and self-propelled guns were repaired and more than 82,300 tank engines were overhauled. Medium and major overhauls were performed on roughly 2 million motor vehicles. More than 8,800 ship repair jobs were done in the Baltic, Black Sea, and Northern fleets.

Rear units did a great deal of work on engineer-airfield and airfield-technical support of Soviet Army and Navy aviation. More than 6,000 airfields were set up for air force needs. Aviation-technical and other rear units together with the personnel of lined units supported more than 4 million flight missions which delivered more than 30 million aerial bombs weighing a total of more than 700,000 tons to the targets.

The medical service made a worthy contribution to our victory over the enemy. Under difficult conditions it was able to implement the latest advances of medical science at that time and together with agencies of the People's Commissariat of Health achieved results unprecedented in the history of domestic medicine. During the war more than 72 percent of the wounded and roughly 91 percent of the sick persons were returned to the ranks. This created conditions for regular replenishment of the active army with experienced and battle-hardened personnel. In the difficult wartime situation Soviet medicine did not allow epidemics to spread among army and navy personnel.

The specialists of the veterinary service did a good deal to maintain the work capability of the horses and prevent diseases common to humans and animals. Thanks to their efforts stable epizootic safety was maintained and infectious diseases transmitted from animals to humans did not spread.

In addition to supplying army and navy forces with everything necessary for battle and living the Rear Services of the Soviet Army and Navy during the war rendered great assistance to partisans, industrial enterprises, kolkhozes, sovhozes, and the local population. For example, in 1945 alone motor vehicle units of the Soviet Army hauled 1.5 million tons of grain, 500,000 tons of vegetables, 1 million tons of coal, and a great deal of other national economic freight. By the end of this year almost 11,000 Soviet Army motor vehicles were working for the country's national economy. In all during the war Armed Forces motor vehicle transportation carried more than 21 million tons of various freight for the national economy.

Together with other services the agencies of the Rear Services also supplied necessities to units and large units of the allied and friendly countries while they formed in USSR territory and waged combat against the common enemy. Following a decision of the Soviet Government 900,000 rifles, carbines, and automatic weapons, 40,627 machine guns, 16,502 guns and mortars, 2,346 airplanes, 1,124 tanks and self-propelled guns, and a significant amount of other types of weapons, equipment, gear, and ammunition was turned over to the armed forces of foreign countries. Various kinds of aid was also given to the peoples of the countries liberated from fascism: Poland, Czechoslovakia, and Yugoslavia as well as Bulgaria, Hungary, Romania, and the population of Germany and Austria.

In general the Soviet Armed Forces Rear Services successfully handled their assigned missions under the difficult wartime conditions and made a worthy contribution to our victory in the Great Patriotic War.

The Great Patriotic War, like World War II as a whole, graphically demonstrated once more the brilliance of V. I. Lenin's teaching that "to really wage war one must have a strong, well organized rear."* This applies equally to the rear of the country and the Rear Services of the Soviet Armed Forces.

But what was done in this direction during the last war? After summarizing and analyzing the activities of the rear in the first weeks of battle on the Soviet-German front the Central Committee of the Communist Party, the Soviet Government, and the State Committee on Defense took a number of major organizational steps to strengthen the country's national economy and the Rear Services agencies that were directly supporting the army and navy. On 28 July 1941 the State Committee on Defense had already adopted a decision on reorganization and centralization of control of the Red Army Rear Services.

This decision created the Main Directorate of Rear Services of the Red Army and rear directorates in the fronts and armies and instituted

* Lenin, V. I., "Polnoye Sobraniye Sochineniy" [Complete Works], Vol 35, p 408.

the position of chief Red Army Rear Services as well as the positions of rear chiefs in the fronts and armies. A headquarters was formed at the Main Directorate of Rear Services and organizational-planning divisions were established in the rear directorates of the operational formations. According to the new organizational plan the Main Directorate of Rear Services and the rear directorates of the operational formations included the directorates (divisions) of military communications and the motor vehicle-road service. In addition to the Main Directorate of Rear Services the Main Quartermaster Directorate, Fuel Supply Directorate, Main Military Medical Directorate, and Veterinary Directorate were made subordinate to the chief of Red Army Rear Services, who was at the same time a deputy USSR People's Commissar of Defense. The corresponding directorates and divisions at lower levels were made subordinate to the rear chiefs of the fronts and armies. On 19 August 1941 the position of chief of rear services for the Red Army Air Force was established, followed in May 1942 by the position of chief of rear services for the Navy.

Gen A. V. Khrulev, a major party worker, prominent military figure, and deputy USSR people's commissar of defense was appointed chief of the Red Army Rear Services. Generals M. V. Zakharov and P. A. Yermolin were appointed deputy chiefs, Gen P. V. Utkin was named chief of staff, and division commissar V. A. Bayukov was appointed military commissar of the Main Directorate of Rear Services. Gen S. I. Vorob'yev was promoted to the position of chief of the Main Directorate of Rear Services and deputy people's commissar of the Navy, while generals V. N. Kurdyumov, V. K. Mordvinov, M. A. Reyter, I. K. Smirnov, M. G. Snegov, I. G. Sovetnikov, and M. S. Khozin were appointed chiefs of rear services and, simultaneously, deputy troop commanders of the fronts.

The rear chiefs were given considerable authority. They were made responsible for the organization of rear services, delivery of all types of materiel, and evacuation and support of troops. The chief of Red Army Rear Services was also responsible for delivering all types of replacements to the fronts and evacuating the wounded and sick.

The reorganization and centralization of control of the Rear Services was entirely appropriate to the conditions of warfare. This made it possible to direct rear work on a more operational basis, straighten out troop logistics, and use all types of transportation efficiently.

In addition to reorganizing the control agencies it was necessary to improve the organizational structure of rear services and increase their mobility. In August-October 1941, at the suggestion of the chief of Red Army Rear Services, the People's Commissar of Defense ordered many rear units and establishments abolished and the number of permanent storehouses, storage bases, workshops, and other establishments sharply reduced. Field storehouses for the basic types of materiel were instituted in the fronts to increase the mobility of the operational rear while in the army field army supply bases were

established with 7-8 field storehouses instead of 24-25. The troop rear was considerably curtailed, but at the same time reinforced with motor vehicles. All this made it possible to simplify control of rear services. The organizational structure of railroad, road, and motor vehicle troops and various rear units and establishments was improved.

Compared to prewar views on construction of the rear of an active army, during the war years there was a tendency to decrease the depths of rear regions and bring rear units and establishments as close as possible to the troops (or naval forces), especially during preparations for operations. The depth of rear regions was more than cut in half: from 500 to 150-250 kilometers for the front rear, from 150-250 to 50-100 kilometers for the army rear, and from 40-75 to 20 kilometers for the troop rear. This insured normal location of rear agencies, created favorable conditions for their work, and fitted the requirements of mobile combat actions.

One of the new principles of rear work during the last war was creating conditions for stable rear support to troop groupings in operations conducted without operational pauses. This was seen especially clearly in the final phase of the war when the front offensive operations went forward without extended pauses, successively in different strategic axes, and when they often developed in depth into new operations. Under these conditions rear support to army and navy forces had to be organized so that at the end of the operation all rear elements were able to accomplish their mission on the move.

The role of the central agencies of the Red Army Rear Services increased immeasurably during the Great Patriotic War. According to pre-war views they were given only the role of an intermediate element between the country's economy and the active army. It was assumed that they would mainly receive all essential goods from national economic agencies and send them off to the fronts and fleets. But the war greatly expanded the functions of the central elements of the Red Army Rear Services. The central element not only received war goods from the national economy and delivered them to the fronts, fleets, and military districts but also accumulated and stored materiel reserves, supported military shipping, and carried on the preparation, technical cover, and restoration of key transportation lines, and the like.

The importance of this element of the Rear Services particularly increased in supporting Army and Navy forces waging strategic offensive operations outside the country, when it was necessary to increase the efforts of the rear services of active operational formations. In this period storehouses subordinate to the center had to advance behind the fronts carrying reserves of materiel and with repair, medical, transportation, engineer-airfield, procurement and other rear agencies.

The Great Patriotic War confirmed once again the particular importance of always having reserve rear forces and means in all rear elements.

These reserves made it possible for the command to influence the course of events at the proper time and maintain the survival capability of the rear support system of the active army. With due regard for the specific applications of rear reserves highly mobile units, establishments, and subunits were usually assigned to them. The reserve forces and means used up in the course of operations were usually restored immediately and taken close to the regions of their probable use.

The experience of the war demonstrated that continuous supply of materiel is exceptionally important to support an active army. Any stockpiles of materiel, no matter how large they are, and the military goods produced during a war can lie useless in arsenals, bases, and storehouses if they are not delivered where ordered on time. During the Great Patriotic War deliveries of materiel accounted for more than 50 percent of the total volume of all military shipping. All types of transportation should be used together for military shipping, with centralized control. There is no question that the role of the types of transportation differed in different real elements depending on the situation. Thus, at the troop level delivery was done primarily by motor vehicles and in part by draft animals. On the operational and central levels railroad transportation (in the navy water transportation) played the leading part in deliveries. But even then there was a clear trend toward replacing and backing up railroad transportation in the armies, fronts, and even the center with more mobile forms, that is, motor vehicle, air, and partially pipeline transportation.

The effectiveness of motor vehicle transportation depended greatly on correct selection of procedures and methods of organizing delivery. During the war a flexible system of delivery developed which suited the mobile character of Soviet Army operations. The determining features of this system were: responsibility of the senior officer for delivery of materiel to lower-ranking elements; extensive maneuvering with motor vehicle transportation; when necessary, enlisting motor vehicle units of the lower-ranking elements for delivery of materiel according to the plan of the higher-ranking commander.

The medical support of the Soviet Army and Navy during the Great Patriotic War was appropriate to the level of development of medical science at that time, the means at the disposal of the medical service, and the nature of operations and conditions under which they were waged. The system of treatment by stages and evacuation of sick and wounded by order, which was followed together with sanitary hygiene and antiepidemic measures, was entirely appropriate and worked well. Local treatment-evacuation bases were used extensively for the Armed Forces. The evacuation of sick and wounded was carried out according to the plans of higher-ranking levels of the medical service. Special medical means of transportation as well as general-purpose transportation were used for this.

The war required the veterinary service to search for and introduce new organizational forms and scientific methods of treatment and

evacuation, fighting infectious diseases, conducting veterinary examinations, and using new medicines, biological preparations, and equipment to insure effective treatment. During the war a set of steps to eliminate epizootic foci was completely formed. The war experience convincingly refuted the views of bourgeois scientists that epizootics are inevitably associated with all wars and frequently develop into national disasters.

Without dwelling on many other distinguishing aspects of the activities of various rear agencies I will stress the main thing: during the war the Soviet Armed Forces Rear Services acquired enormous experience which helped it handle the colossal volume of work resulting from the great scope of the operations, the high intensity of combat actions, and the mass regrouping of forces which was especially typical in the concluding operations of the Great Patriotic War.

More than 30 years have passed since the triumphant end of the Great Patriotic War, but the experience gained by rear fighting men in those harsh trials continues to be very important. On the basis of an objective evaluation of the past Soviet military science drew a number of fundamental conclusions which determined the direction of postwar development of the means and methods of rear support. Needless to say, the experience of the war is not used mechanically; it is used creatively, with due regard for changes taking place in military affairs.

As the war experience demanded, all rear elements and services have been completely motorized and mechanized. The rear has received multipurpose motor vehicles and vehicle trains with improved off-road capability, highly productive machinery for loading-unloading and other jobs, modern means of defense against weapons of mass destruction, and equipment for communications and automating control processes. The necessary stockpiles of new types of weapons, combat equipment, ammunition, and other materiel have been established at the arsenals, bases, and storehouses of all levels, as combat experience persistently teaches.

Considering the experience of the last war the railroad troops were raised to a new level of development. They now have the latest machinery and mechanisms, including sets of equipment for technical reconnaissance, restoring and building the roadbed and bridge crossings, restoring communications and water supply facilities, and performing road maintenance and clearing work. This new equipment makes it possible to completely mechanize the basic processes of building and restoring railroads.

The road troops have also changed. They have received new equipment which makes it possible to build and restore motor vehicle roads and bridges at a high speed. In addition they now have modern means of traffic control and other equipment.

Qualitative changes have taken place in the fuel supply service. It has been provided with an adequate number of highly productive field mainline and storehouse pipelines, new metal and rubberized fabric tanks, pumping stations and motor pumps, fuel and water-oil tank trucks, equipment for centralized refueling of aircraft, and sets of equipment for refueling ships with liquid fuel away from the dock.

In the food service new food rations have been developed and adopted; among them are an alpine ration, a ration for atomic submarine personnel, a therapeutic-preventive ration, and a flight ration for pilots. Devices for cooking food in the field using the exhaust gases of engines, new mobile kitchens, field kitchen-messhalls, refrigerator units, field bakeries, and other such units have been introduced. The diet of all categories of servicemen has been improved and made more varied and the assortment of food products has been greatly improved.

The clothing service now has the necessary number of mobile workshops for dry cleaning uniforms, clothing and footwear repair shops, various types of field laundries, and so on. The expanded production of consumer goods in the country has provided the basis for a steady improvement in the supply of clothing to personnel.

The medical service has been transformed. Medical units and subunits have received new means of searching for, collecting, and evacuating wounded (special transporters, medical motor vehicles, buses, airplanes, and helicopters), modern field laboratories, special disinfectant showers and sterilization-distillation units, refrigerator trucks for storing blood and medicines, special systems for blood transfusions, and other equipment. Military doctors and medical institutions carry on a great deal of preventive and therapeutic work and devote substantial attention to studying and improving the working conditions of the fighting men.

Veterinary support has changed with the complete mechanization of our forces. The main task of the veterinary service now is to protect Armed Forces personnel against infectious diseases which are common to humans and animals and against illnesses which may occur from eating contaminated food. The war-tested basic principles of antiepizootic protection and veterinary-sanitary checks on food supply to the troops are the basis for accomplishment of this important mission.

All the elements of the Armed Forces Rear Services have acquired new characteristics as a result of technical reequipping and the improvement of composition and organizational structure. The modern troop rear for all branches of the Armed Forces can pick up and transport all envisioned troop supplies behind the troops (naval forces) for any distance under the most complex conditions and insure the essential self-sufficiency of its subunits, units (ships), and large units. When necessary rear subunits and units can quickly deliver fuel, ammunition, and other materiel right to the battle formations (ships), refuel

groups and individual machines quickly, evacuate and repair weapons and equipment with more complicated damage than before by high-speed methods, provide medical care to sick and wounded and evacuate them when ordered, cook hot food and bake bread on the move, and perform all other missions which may face the rear during the movement of army and naval forces in modern battle.

The operational rear has powerful, highly mechanized bases (logistical) and storehouses, railroad, road, motor vehicle, and pipeline forces, and repair, medical, engineer-airfield, airfield-technical, and other units and establishments.

Like all the personnel of the Armed Forces, the fighting men of the Rear Services are today living and performing their work in a state of great political and labor enthusiasm aroused by preparations for the 60th anniversary of Great October and adoption of the new Constitution. The lofty socialist obligations taken on by the fighting men in honor of the anniversary of October are evidence of their ardent patriotic desire to bring joy to our native land with new achievements in the work of steadily bolstering the combat might of the Soviet Armed Forces, improving organization and discipline, and raising vigilance and combat readiness.

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